Alaska's economy and the pandemic

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Abstract

The Alaska economy has emerged from its longest recession in 2019. The decline in economic activity and government revenues was due to the severe decline in oil prices which resulted in deep spending cuts and significant private sector job losses. The current pandemic has resulted in a significant shock to all facets of the Alaska economy. In this paper, we provide a little bit of background on the Alaska economy, present new high frequency data to asses the extent of the current damage, and then present a forecast for the next 6, 12, and 18 months. In 2020, we anticipate the economy to end the year with almost 25,000 fewer jobs than in 2019. The decrease would represent a 7.4% relative to the previous year. In 2021, we expect the economy to slowly start regaining the jobs lost the previous year and grow at a rate of 2.2%. In 2022, we anticipate a continuing climb for the economy as it is expected to grow at 1.1% percent. By the end of 2022, the Alaska economy should be at about 95% of the pre-pandemic levels. It is important to note there are significant downside risks which could negatively influence the employment outlook.

Keywords: Recession; Covid-19; Recovery.

Contents

1 Alaska's economic drivers

Alaska's economic structure can be best described as an export driven natural resource one. The state possesses both renewable natural resources such as Seafood and non-renewable natural resources such as Oil & gas and mining. These sectors generate dollars and jobs through selling goods to the rest of the world. Due to the large markets they serve, they not only support jobs directly but are also responsible for a considerable number of jobs due to multiplier effects. In addition to these traditional sectors, Alaska's natural beauty brings millions of visitors each year making the visitor industry an important economic engine, especially over the summer. In addition to these private sector basic industries, Alaska receives considerable federal inflows which reverberate through many parts of the state and sectors. The worldwide pause of economic activity due to the pandemic has resulted in sizeable decreases to demand which have negatively affected all of these economic drivers with the exception of the federal government which has allocated considerable resources to help maintain household liquidity and assist businesses cope with the closures.

1.1 What challenges does COVID-19 present for Alaska's economic drivers?

We forecast wage and salary employment for each of the North American Industry Classification System (NAICS) supersectors for which we have complete data. Specifically, we provide forecasts for Natural Resources and Mining, Construction, Manufacturing, Transportation and Warehousing, Information, Education and Healthcare services, Leisure and Hospitality, Retail Trade, Wholesale Trade, Information, Utilties, Other services, Federal government, state government, and local government. Those sectors do not, however, perfectly map into Alaska's economic drivers. Below, we provide some background on how the main drivers are being affected by the pandemic and how they map into the sectors we forecast.

1.1.1 Oil & gas

As a result of the worldwide economic pause due to the pandemic and international tensions between Russia and Saudi Arabia, both oil prices and production have been under pressure. Oil prices in the first 5 months of 2020 are averaging 28 dollars less than the same period in 2019. Prices have somewhat rebounded after reaching negative territory on April 20th. May 2020 prices averaged 42 dollars less than in May 2019. For the first two weeks of June, prices are averaging 22 dollars below the same period last year. As economies continue their reopening, we should see prices continue their slow climb. ConocoPhillips announced in April that it will cut oil production in Alaska by about 100,000 barrels per day for the month of June in response to the low oil prices. May 2020 production levels were 75,000 barrels per day less than May 2019. For the first two weeks of June, daily production is averaging 107,778 fewer barrels per day than the same period last year. On the employment front, Oil & gas employment in April 2020 was 10.1% less than April 2019. In section 18, we present the monthly employment forecast for the Natural Resources and Mining sector starting in June 2020.

1.1.2 Seafood

Alaska seafood is more than a 5 billion dollar industry. The pandemic presents challenges on both the demand front as well as the workforce front. The state of Alaska has required the food processing sector to present both safety and mitigation plans in order to be able to protect workers and the communities at large. The sector contains both harvesting and processing but as the harvesting sector is made up mainly of self employed individuals, we do not have a consistent employment series and therefore we only forecast the manufacturing sector which has wage and salaries employees. The manufacturing sector as whole was down by 6.9% in April 2020 relative to April 2019. In section 21, we present the employment forecast of the manufacturing sector which is almost 70% made up of Seafood manufacturing. The sector's

outlook is also uncertain as the demand for seafood is tied to the recovery of the economy and the re-opening of restaurants.

1.1.3 Tourism

Perhaps no other sector is more impacted by the pandemic than the travel industry and its related components. According to the McDowell Group, the visitor industry is typically responsible for as much as a 1.5 billion dollar injection of labor income into the economy. This increase of tourist activity also plays an important role in generating sales tax revenues at the local level. As of June, the expectation is that the tourist season for 2020 will be much smaller with virtually no cruise ships and very little air traffic. There is no one industry that maps directly to the tourism sector but the two sectors with the strongest ties are Leisure and Hospitality and Transportation. In April 2019, the Leisure and Hospitality sector experienced a 48% drop relative to April to 2019 while the Transportation and Warehousing sector experienced a 10.5% decline during the same time span. We present the monthly employment forecasts for the Leisure and Hospitality and Transportation and Warehousing in sections 20 and 24, respectively.

1.1.4 Mining

The mining industry seems to have been able to continue operating even in the midst of the pandemic. The industry, however, is incurring additional costs associated with safety. We unfortunately do not have a decomposition of the virus's impact on the sector specifically. Therefore, we forecast the Natural resources & Mining as a group in section 18. In 2019, the sector averaged 3,000 employees with an average monthly wage of more than 9,000 dollars. In addition to its statewide importance, the sector plays a crucial role in the economies of many local communities such as the Northwest Arctic borough which is home to the Red Dog Mine. It is also important to note that the mining sector grew at a cumulative rate of 2.7% between

2015 and 2018 during Alaska's longest recession.

2 Forecast assumptions

The pandemic has caused considerable uncertainty and job losses for the Alaska economy due the temporary business closures, a significant drop in travel, and a drop in oil prices and production. The unprecedented level of economic uncertainty makes the outlook highly vulnerable to a number of different shocks. The forecast we present below makes a number of important assumptions about the federal aid, oil prices, and the pandemic. First, we assume that the federal government will continue to provide financial assistance to unemployed individuals either by extending the unemployment insurance payments or by investing in work share programs. Second, we rely on the Alaska Department Revenue's forecast that shows oil prices will remain low but stable for the next two years. Third, and perhaps most importantly, we assume that the virus will be contained and that the economy will not experience another round of closures. Lastly, we assume a normalization of travel in 2021 which significantly affects the leisure and hospitality outlook. It is, therefore, best to view the forecast as one potential path for the economy under the conditions we describe. These assumptions mean that the forecast has significant downside risks which could negatively influence the output and employment outlook for the state. It is also important to note that the economic pain will not be equally distributed across the state as tourism dependent communities will struggle to replace the income, jobs, and sales tax revenues typically injected over the summer period. While we show below the sector specific employment paths, our economic model accounts for inter-sector relationships and therefore captures not only first round effects but indirect and induced effects.

3 Summary

3.1 Main findings

Two of Alaska's important economic engines -Tourism and Oil & Gas- are experiencing a severe shock due the pandemic. According to a 2018 report by the Mcdowel Group [4], the visitor industry is typically responsible for as much as a 1.5 billion dollar injection of labor income into the economy. While the decline in travel related activities are going to have large effects on the economy, it is important to note that, as of 2018, 30.9% of the travel industry workers are considered non-residents. The low share of residents should mitigate the indirect and induced negative consequences. The Oil & Gas sector is connected to every facet of the Alaska economy and had direct wages of almost 2 billion dollars in 2019. Negative shocks to the sector due to low oil demand will reverberate to all parts of the economy and the budget. Oil & Gas, similar to the visitor sector, has a 34% share of non-residents but it is currently unclear how the layoffs are affecting residents versus non-residents. As a result of the scale of the expected declines in these economic drivers, all sectors of the Alaska economy, with the exception of the Federal government, are expected to contract in 2020.

In addition to these structural shocks, the Alaska economy was paused for 2 months when many non-essential businesses were closed. These closures resulted in spending declines across sectors which have forced layoffs. In just twelve weeks, there have been more than 118,000 initial unemployment insurance claims filed in Alaska. The number of continuing claims currently stands at 43,922 which is 13% of Alaska's labor force.

- The state emerged from a 3 year recession in 2019 when it experienced a growth rate of 0.61%. Non-farm employment in February 2020 was 317,700 which is 1,300 jobs more than February, 2019.
  - Mining & and Logging, Alaska's most important economic base which includes Oil

& Gas, had experienced 3 years of decline from 2015 to 2018 going from having 17,400 jobs to just 12,700. In 2019, the sector gained back 700 of the 4700 it lost in the preceding 3 years.

  - The retail sector, one of the sectors most affected by the shut-down, contained 10.7% of Alaska's non-farm employment and represented 4.4% of Alaska's GDP in 2019.

  - Leisure and Hospitality, the sector most sensitive to restaurant closures and tourism, represented 9.87% of Alaska's non-farm employment and 3.5% of Alaska's GDP.

  - Healthcare and social assistance was one of the few sectors to not experience declines during Alaska's most recession. As of February 2020, it had 38,700 employees which represents 12.18% of Alaska's non-farm employment. The sector makes up 8.1% of Alaska's GDP. Due to the pandemic, the sector experienced a sharp decline in activity but is expected to rebound as people have delayed many procedures during the closures.

- The rapid pace of change experienced over the last few weeks has required usage of non traditional high frequency data which provides near real time insights. This type of data allows us to make real time assessments of changes in behavior and spending.

  - Foot traffic data provided by Safegraph shows that mobility in essentially all types of establishments declined precipitously even before the mandates went into effect. The week ending March 15th saw declines in just about every sector. The week over week declines continued until the week ending April 19th. Starting the week ending April 26th, there is a marked increase in foot traffic across the economy.

  - Across all sectors, foot traffic reached its trough in the week ending April 19th when it was at 49% of the week ending March 8th. Activity has picked up with week over week increases since then. As of the week ending May 17th, foot traffic

is at almost 75% of where it was before the pandemic.

  - As of the week ending May 17th, foot traffic levels at healthcare and social assistance establishments is 71.4% of what it was the ending March 8th. Traffic has now been increasing for four straight weeks but is still less than 3/4 of the levels before the shutdowns. Accommodation and Food services has also experienced significant declines in foot traffic due to dine-in restrictions during the lock-downs but as of the week ending May 17th, foot traffic levels are at about 73% of the pre-pandemic levels.

- These mobility declines translated in decreases in both spending and business revenues.
  - In Alaska, as of June 3rd 2020, total spending by all consumers decreased by 15.3% compared to early January 2020. Spending levels reached their trough on April 8th right before the receipt of the stimulus checks. Since Allowing non-essential businesses to reopen, spending has gone up week over week.
  - Small business revenue have also declined significantly. On April 1st, mainly due to the closures, business revenues were half of the levels observed in late January. As of June 8th, revenues have rebounded and are now about 21% less than early January.

- Pre-Covid-19 Alaska economic forecast
  - In the absence of the pandemic shock, we were expecting the Alaska economy to continue its slow recovery and grow at an annual rate of 0.7% which would have translated into about 2,300 jobs.
  - The growth would have been driven by Oil and Gas, Construction, and Healthcare. All three sectors in addition to those dependent on summer activity have been deeply affected.

- Economic impacts of the pandemic on the national economy
  - The Federal reserve [2] has produced a national forecast showing that the unemployment rate in 2020 is expected to be 9.3% which is much higher than the pre-pademic forecast of 3.5%.
  - The Federal reserve's forecast indicates that there may be employment scarring with a share of the temporary layoffs becoming permanent.
  - Another nonpartisan unit -The Congressional Budget Office- expects the national unemployment rate to be 11.5% in 2020 and drop to 4.2% by the end of 2021. They expect GDP to decline at a rate of 5.6% in 2020 and then partially recover in 2021 by growing at a rate of 4.2%
- Economic impacts of the pandemic on the Alaska economy
  - In just twelve weeks, there have been more than 118,000 initial unemployment insurance claims filed in Alaska. The number of continuing claims currently stands at 43,922 which is 13% of Alaska's labor force.
  - In April 2020, employment in Alaska declined by 42,200 jobs relative to April 2019. Every sector in the economy, with the exception of Federal government, lost jobs. Unsurprisingly, Leisure and Hospitality was the most affected sector and lost 48.1% of its jobs.
  - As a result of the opening of the Alaska economy, May employment is slightly improved relative to April. However, May 2020 employment is still 12.2% below May 2019. Retail trade and Leisure and Hospitality were the two sectors to experience the most significant improvements.
  - In 2020, we anticipate the economy to end the year with almost 25,000 fewer jobs than in 2019. The decrease would represent a 7.4% drop relative to the previous

year. In 2021, we expect the economy to slowly start regaining the jobs lost the previous year and grow at a rate of 2.2%. In 2022, we anticipate a continuing climb for the Alaska as it is expected to grow at 1.1% percent. By the end of 2022, the Alaska economy should be at about 95% of the pre-pandemic levels.

  - Absent the Paycheck protection program, the Alaska economy could have lost another 13,000 jobs. While it is difficult to create a counterfactual, the federal aid has also significantly mitigated business failures as it allowed firms to cover a portion of fixed costs and wait for the re-openings. The additional 600 dollars in Federal Unemployment insurance payments has also allowed consumers to remain financially liquid in the midst of severe employment shock.

- Challenges going forward:

  - The federal aid to households, businesses, and the state has been substantial. The Federal unemployment insurance, however, will expire at the end of July which can represent a significant income shock to the Alaska economy.
  - Additionally, the expiration of the Paycheck Protection Program may force businesses to lay off workers again if consumer demand does not increase substantially.
  - Continued support that is attached to the unemployment rate or the state of the recovery may be more appropriate than aid that runs out at specific dates.

- Federal aid:

  - Alaska firms, in two rounds, received 1.3 billion dollars. Initially, recipients were required to use 75 percent of the PPP loans for payroll in order to have the full loan forgiven. The SBA threshold has now been revised and would require recipients to use 60 percent of the loan specifically on payroll. Additionally, it would give business owners more time to spend the loans: Before, the money had to be

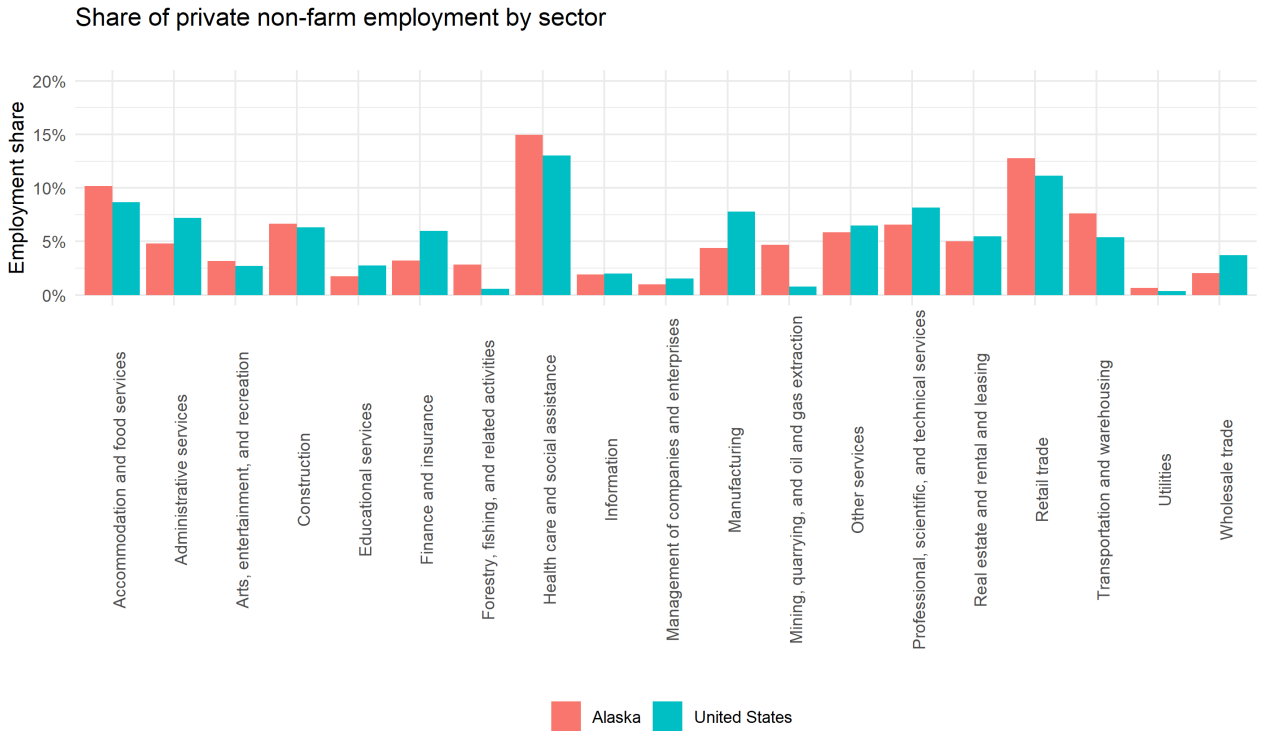
used within an eight-week time frame, but now it can be used within 24 weeks of obtaining it. Using the 60% rule on payroll would indicate that 780 million dollars went towards payroll and job protection. Alaska's average annual wages, as of 2019, were 4,748 dollars. This would mean that the federal assistance is potentially supporting 13,689 year round jobs.

- In addition to the Paycheck protection program, individuals received The Economic Impact Payments which totaled more than 580 million dollars and the Federal Pandemic Unemployment Compensation (FPUC) which is an emergency program that adds 600 dollars per week to unemployed individuals.
- The state has also received 1.5 billion dollars to assist with the fallout from the pandemic. Of that amount, 290 million dollars has been set aside for businesses assistance. According to the Division of Community and Regional Affairs, as of June 22nd, another 271 million dollars has been distributed to communities.

4 Wage and Salary employment in the Alaska economy

The Alaska economy has become considerably more diversified over the years. In the graph below, we show the share of employment by sector in both Alaska and the U.S. Unsurprisingly, Alaska has a much larger share of employment in both Mining/Logging and in Forestry/Fishing. While there are some small differences in shares in the other sectors, they are not very pronounced. In addition to these private sector differences, federal spending in Alaska generates jobs in many ways through both military and civilian activities. These flows of federal dollars generate more jobs throughout the economy. For example, federal employees generate jobs when they spend their wages, and federal agencies create jobs when they buy from local businesses. Construction, a big economic engine, is also heavily dependent on public federal spending. In 2020, 2.8 billion of the 6.6 billion dollars in construction spending is coming from public dollars most of which are federal.

Figure 1: Employment share in both Alaska and the United States



To further highlight the similarities and differences between Alaska and the U.S, we calculate location quotients or relative concentration of sectors in Alaska relative to the U.S. In essence, we are dividing the share of employment for each sector in Alaska by that same share in the U.S. If a ratio is larger than 1, it indicates a higher concentration of that specific sector in Alaska and can therefore be thought of as a basic sector. The differences between the Alaska economy and the U.S in terms of both industrial structure and demographics means that the path to recovery will be different. In addition to the industrial structure differences, Alaska -as we show in Figure 3- has the most seasonal economy in the country. In fact, July employment in Alaska is typically 15% higher than in January. This seasonality is typically driven by a boom in Leisure and Hospitality, Food processing, Construction, and transportation. As a result of the pandemic, a significant portion of this usual increase in activity will not materialize this year. The dependence of the summer season on tourists means that a strong recovery is unlikely to happen before the development of a vaccine. In the next section, we present forecasts at the national level by both the Federal reserve and the Congressional Budget Office (CBO).

Figure 2: Employment concentration relative to the United States

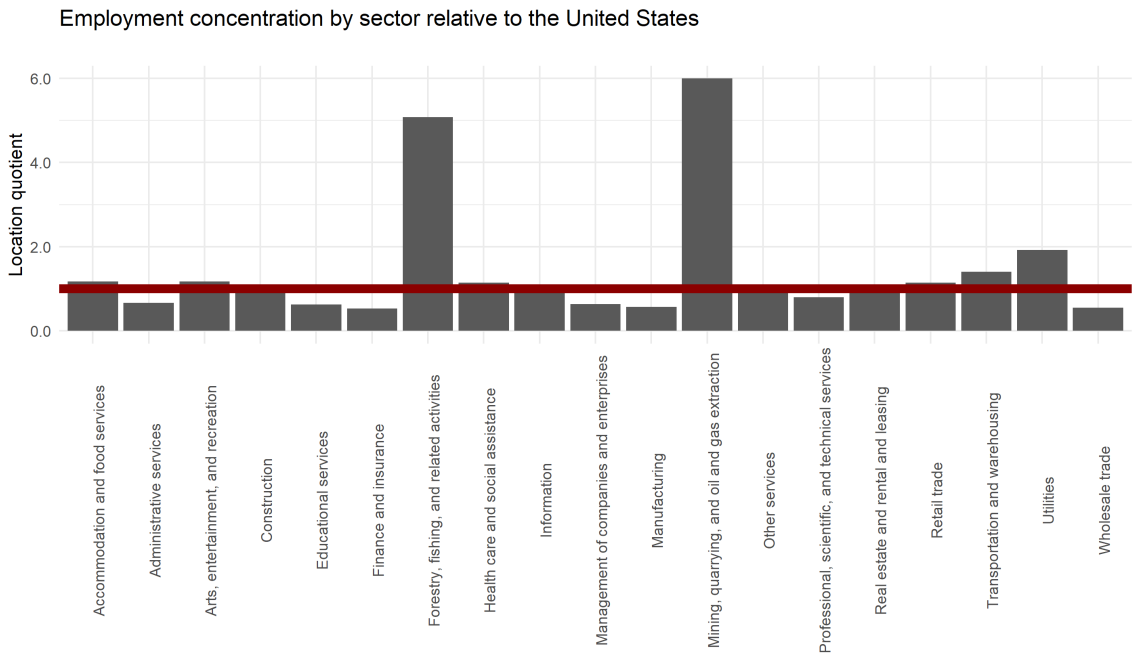
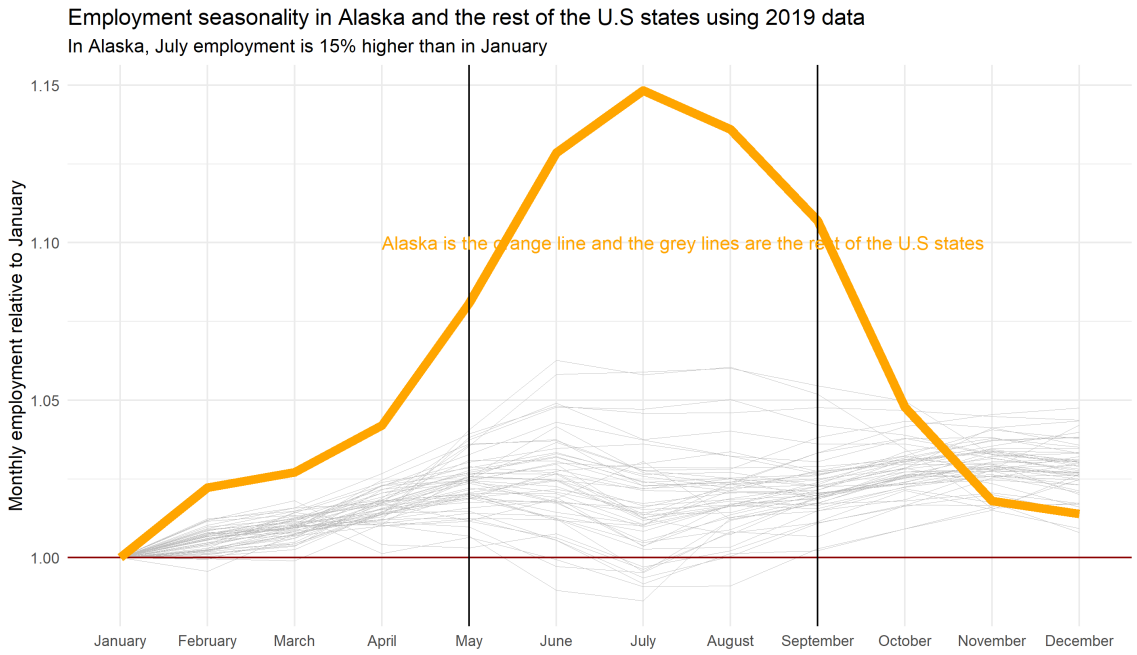


Figure 3: Employment relative to January in Alaska and the rest of U.S states



5 National forecasts and what they potentially tell us about the Alaska recovery?

5.1 What does the federal reserve forecast for the US economy?

The Federal reserve has produced a national forecast showing that the unemployment rate in 2020 is expected to be 9.3% which is much higher than the pre-pademic forecast of 3.5%. Importantly, the Federal reserve's forecast indicates as we show in Table 1 that the U.S economy will gain jobs in both 2021 and 2022 but the unemployment rate by the end of 2022 is not expected to revert back to pre-pandemic levels. It does, however, anticipate that the U.S economy will revert back to pre-pandemic trends after 2022. These projections are helpful in understanding how the pandemic will be affecting the national landscape but as we showed in the previous section, the drivers of the Alaska economy are different and Table 2 shows that the pre-pandemic trajectories for the U.S and Alaska were also different.

Table 1: Federal reserve projections

Category		2020	2021	2022	Longer run
Change in GDP					
	Current Projection	-6.5%	5.0%	3.5%	1.8%
	Pre-pandemic projection	2.0%	1.9%	1.8%	1.8%
	Difference	-8.5%	3.1%	1.7%	None
Unemployment rate					
	Current Projection	9.3%	6.5%	5.5%	4.1%
	Pre-pandemic projection	3.5%	3.6%	3.7%	4.1%
	Difference	5.8%	2.9%	1.8%	None

5.2 Congressional budget office projections

The Congressional Budget Office [1] has released GDP and unemployment rate forecasts before the release of the May employment numbers. The forecast concludes that the national economy will experience a sharp contraction in the second quarter of 2020 stemming from factors

Table 2: Pre- pandemic trajectories for Alaska and the U.S

Category		2018	2019	% change
U.S				
	Real GDP	18.63 trillion	19.07 trillion	2.33%
	Unemployment rate	3.9%	3.7%	-0.2%
Alaska				
	Real GDP	53.09 billions	54.42 billions	2.54%
	Unemployment rate	6.5%	6.1%	-0.4%%

related to the pandemic, including the social distancing measures put in place to contain it. In the third quarter, economic activity is expected to increase, as concerns about the pandemic diminish and state and local governments ease stay-at-home orders, bans on public gatherings, and other measures restraining economic activity. The forecast, however, notes that challenges in the economy and the labor market are expected to persist for some time. Interest rates on federal borrowing are expected to remain quite low in relation to rates in recent decades. In Table 3, we show the changes to GDP and unemployment that were expected before the most recent jobs report. It is unclear how the CBO will revise its forecast given the mixed experiences of states as they continue to reopen. Table 4 shows the yearly forecasts for unemployment and GDP which is not very dissimilar from the Federal reserve's forecast.

Table 3: Quarterly CBO projections

Category	2020:Q1	2020:Q2	2020:Q3	2020:Q4
Real GDP (% change from preceding quarter)	-.9	-11.8	5.4	2.5
Unemployment Rate (Percent)	3.8	14.0	16.0	11.7
GDP (trillions of dollars)	21.6	19.1	20.1	20.7

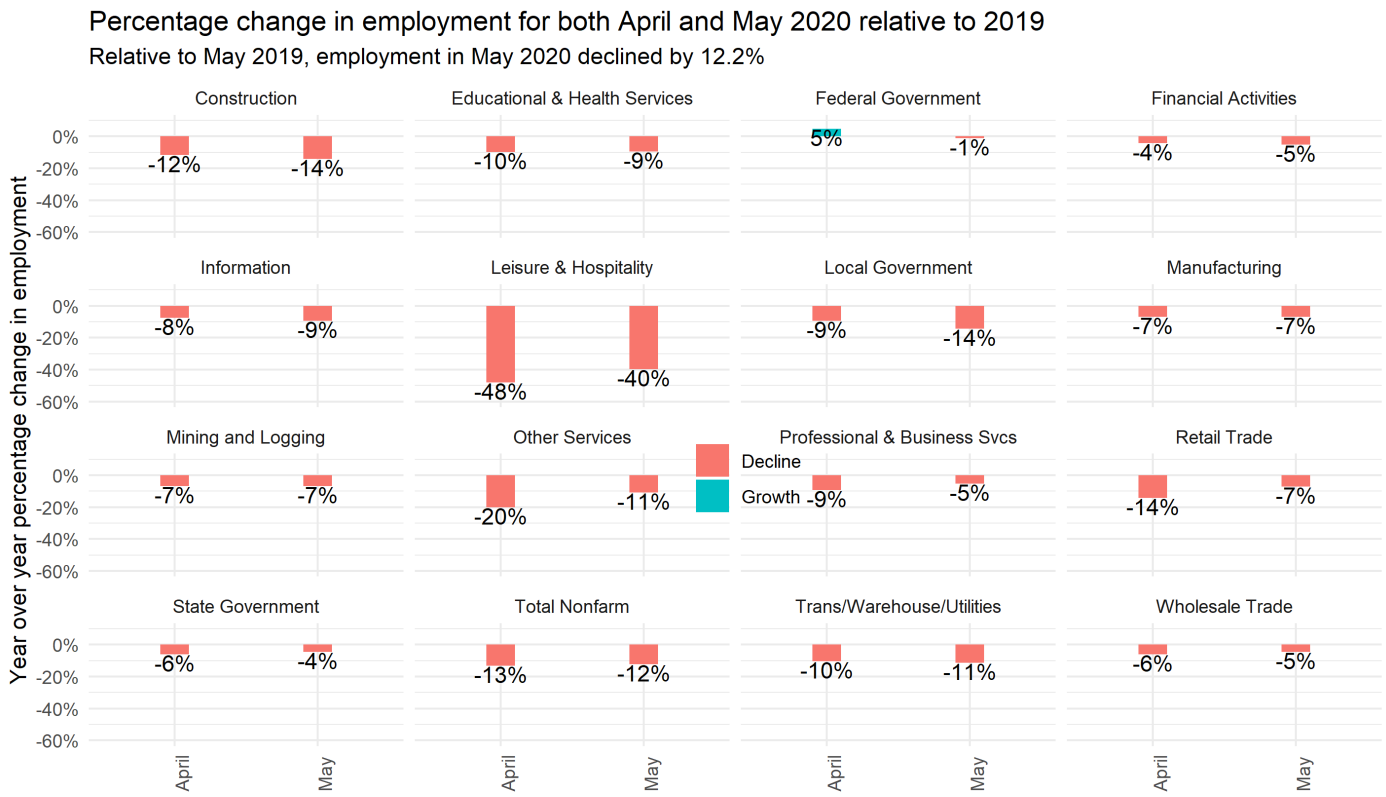
Table 4: Annual CBO projections

Category	2020	2021
Real GDP (% change from preceding year)	-5.6%	4.2%
Unemployment Rate (Percent)	11.5%	9.3%

6 COVID-19 and the Alaska economy

The Alaska economy has emerged from its longest recession in 2019. The decline in economic activity and government revenues was due to the severe decline in oil prices which resulted in deep spending cuts and significant private sector job losses. The state economy grew in 2019 at a rate of 0.4% with a recovery in Construction and Oil and Gas leading the way. As we show in Figure 5, we were anticipating the economy to continue its recovery by growing at a rate of 0.7% in 2020 before the significant pandemic related disruptions which not only have resulted in a shut down and considerable layoffs but also in a significant temporary drop in oil prices even if they have rebounded over the last few weeks. Alaska's economy, like the rest of the country, has contracted in most sectors with the most significant drop in Leisure and Hospitality. Figure 4 shows the employment changes in both April and May relative to the previous year. The state economy's vulnerability comes from a few different directions but mainly the much smaller expected tourism season, and the drop in oil prices. The speed and the scale of the recovery will rest on what share of the workers who are temporarily separated from their employers will be reattached, how many firms are able to get through the period of low demand, how quickly oil prices rebound as demand around the world picks up, how much more federal aid is made available, and most importantly the development of a vaccine or virus containment. In 2020, we anticipate the economy to end the year with almost 25,000 fewer jobs than in 2019. The decrease would represent a 7.4% relative to the previous year. In 2021, we expect the economy to slowly start regaining the jobs lost the previous year and grow at a rate of 2.2%. In 2022, we anticipate a continuing climb as the economy is expected to grow at 1.1% percent. By the end of 2022, the Alaska economy should be at about 95% of the pre-pandemic levels. These projections, importantly, assume gradual virus containment and improvements on the public health front.

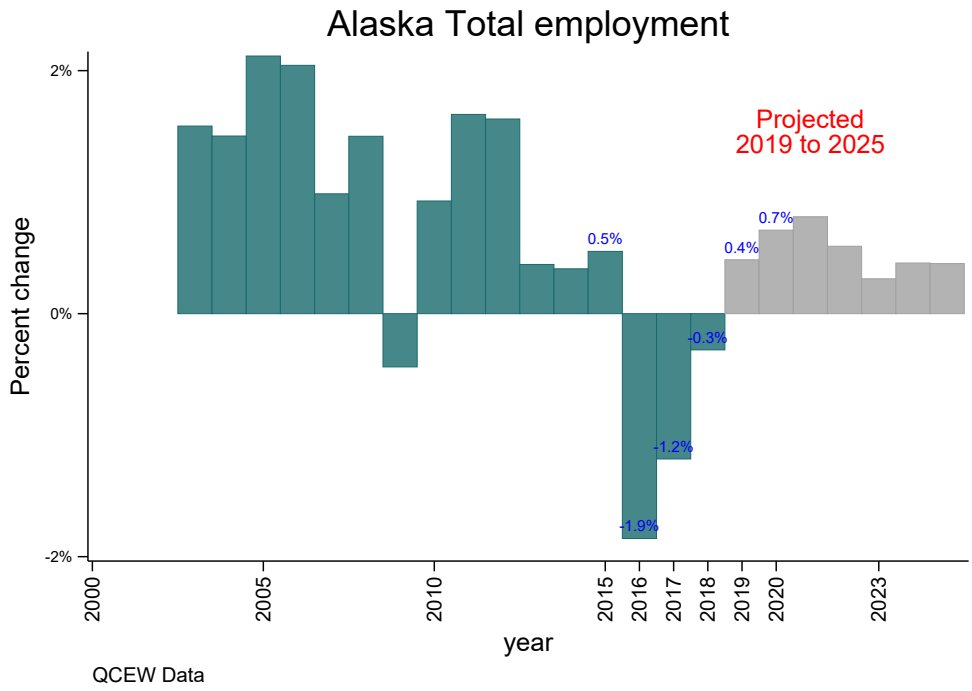
Figure 4: How significant are the changes in employment in April and May 2020



7 Alaska's general outlook

In Figure 6 and Table 5, we present the forecast for the statewide economy through 2022. The Alaska economy was severely affected by the pandemic which resulted in establishment closures, a stoppage of travel, and a large number of layoffs. Additionally the decline in oil demand resulted in unprecedented declines in the oil price which have pushed oil companies to temporarily reduce production. The shelter in place has now been lifted and the Alaska economy has "fully" reopened. The road back to pre-pandemic employment and output levels will be a long one as some businesses have permanently closed, the tourism shock will be long lasting, and while oil prices have recovered from negative territory the outlook is fairly bearish. Local governments reliant on sales tax will feel these declines for multiple seasons. It is very unlikely the Alaska economy will see a V shaped recovery due to the long lasting effects we

Figure 5: Pre-pandemic employment forecast



describe above. It is much more likely that we will see a U shaped or a gradual "Nike swoosh" recovery with a slow climb in activity. We have very likely reached the trough of economic activity but the recovery will vary by sector and will depend on sources of demand, need for face to face interaction, and the general strength of household balance sheets. A sector such as health care should rebound at a much faster pace than the travel industry. In general, industries exposed to any segment of travel will take longer to recover. The oil dependent sectors such as Professional and Business services and Construction will also be challenged as the oil industry deals with historically low demand and low prices. In the next section, we break down personal consumption expenditure by Alaska households. Personal consumption expenditure is a large part of GDP and can therefore inform our understanding of how people allocate money and therefore the speed and shape of the recovery.

Figure 6: Alaska Wage and Salary employment forecast

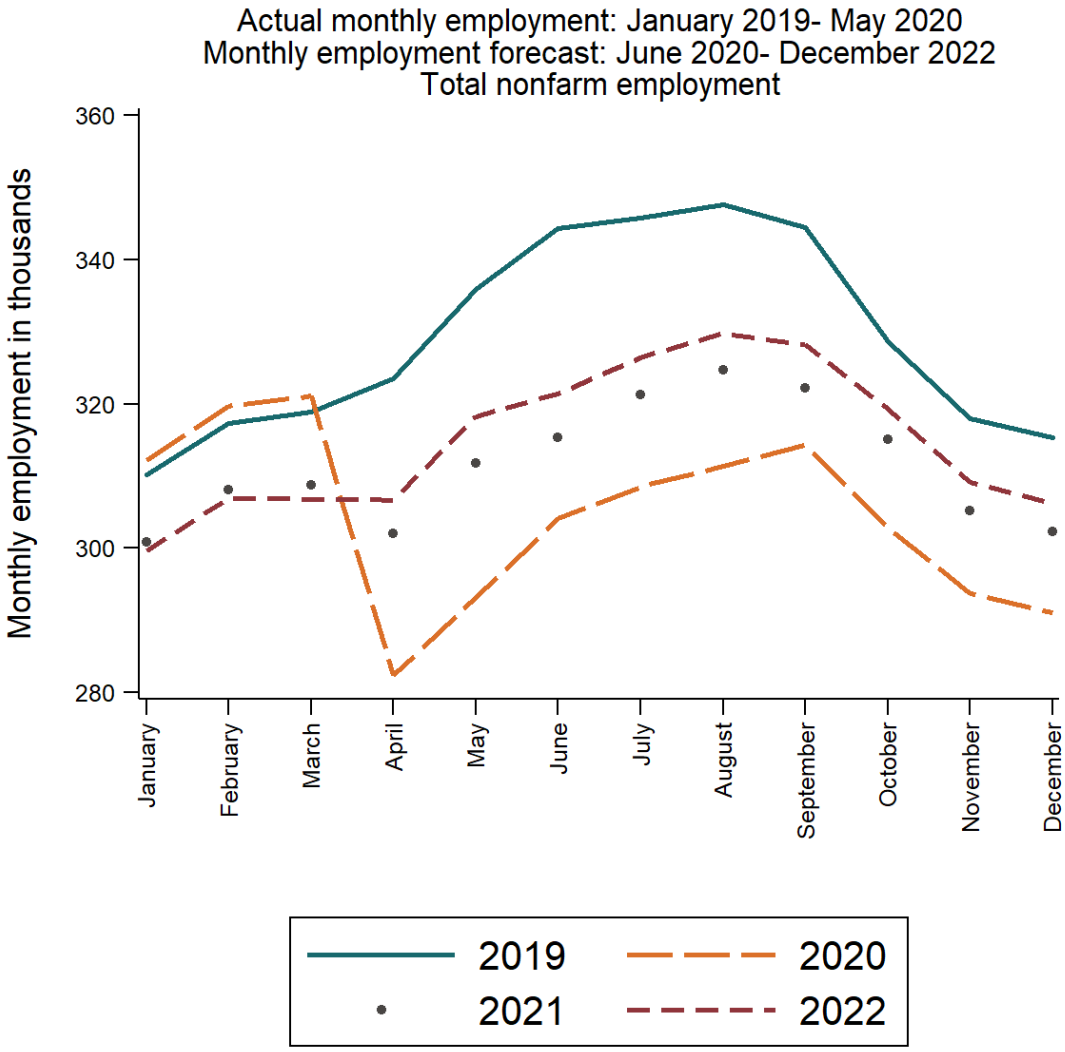


Table 5: Alaska employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	270.1	279.5	282.5	285.4	296.5	304.8	304.9	306.3	309	296.2	286.8	284.8	**292.2**
2003	278.1	284.4	287.7	289.5	303.4	311	308.8	310.1	313.3	298.8	289.5	287.5	**296.8**
2004	282.3	285.6	290	294.7	305.9	311.3	316.6	316.8	319.8	304.7	295.1	293.2	**301.3**
2005	288	292.4	295.8	301.1	313.4	320.3	323.2	325.1	325.6	309	301.2	297.2	**307.7**
2006	292.4	298.6	303.4	308.1	320.5	333.9	329	330.2	331.4	312.4	306.2	303	**314.1**
2007	297.1	303.8	306.5	311.3	323.8	332	330.9	335.1	333.7	316.6	309.1	305.8	**317.1**
2008	300.3	307.2	309.8	314.4	330.3	337.1	338.2	340.5	338.7	320.4	312.8	310.5	**321.7**
2009	303.9	308.7	310.3	314.8	324.6	332.9	334.5	337.2	335.7	319.1	312	309	**320.2**
2010	304.2	308.5	311.1	316.6	326.9	337.7	338.7	340.4	341.3	324.6	317	313.3	**323.4**
2011	308.5	314.9	317.2	321.9	331.4	342.7	343.9	345.9	348.2	329	321	317.6	**328.5**
2012	312.5	320	323	327.1	338.3	349.1	347.3	355.5	350.4	336.5	325.5	321.7	**333.9**
2013	315	322.5	325	329.6	340.8	349.7	349.4	358.5	351.8	334.5	325.1	321.9	**335.3**
2014	318.8	323.4	326	331.8	344.7	351.5	350.7	355.6	351.5	335.7	326.6	324.4	**336.7**
2015	322.4	326.7	329.1	334.3	346.7	353	354.2	355.5	353.2	335.6	325.3	322.6	**338.2**
2016	318.9	323.1	324.6	330.2	340.9	346.2	346.6	347.8	343.8	328.5	318.4	316	**332.1**
2017	310.9	317.6	318.7	322.6	336.2	344.4	343.1	345.7	341.3	326.4	315.2	312.9	**327.9**
2018	308.8	315.7	317.4	320.3	333.9	341.8	341.6	344.9	339.7	326.9	316.5	313.8	**326.8**
2019	310.2	317.3	318.9	323.5	335.9	344.4	345.8	347.6	344.6	328.8	318.1	315.4	**329.2**
2020	312.2	319.7	321.1	278.4	293.1	304.0	308.4	311.4	314.2	302.8	293.7	291.0	**304.5**
2021	300.7	308.0	308.6	302.0	311.8	315.3	321.2	315.3	324.7	322.2	315.1	305.1	**311.4**
2022	302.2	299.6	306.9	306.8	306.6	318.2	321.4	326.4	329.7	328.2	319.2	309.0	**314.8**

Note: April and May 2020 represent the first post-pandemic employment months. Starting June 2020, we present the forecast for the Alaska economy.

8 Personal consumption expenditure

Given that the pandemic has resulted in unprecedented closures and a freeze of economic activity, we start by describing Alaskan's personal consumption expenditure patterns. PCE by state is the state counterpart of the Nation's personal consumption expenditures (NPCE). PCE by state measures the goods and services purchased by or on behalf of households and the net expenditures of nonprofit institutions serving households (NPISHs) by state of residence for the 50 states and the District of Columbia. Therefore, PCE by state reflects spending on activities that are attributable to the residents of a state, even when those activities take place outside of the state. As of 2018, Alaska residents' personal consumption expenditure per capita was slightly over 35,000 dollars with 22% of that amount going towards healthcare and 8% towards food and beverage away from home. As we show in Figure 7 and Figure 8, the share of expenditures in outside food is slightly higher than the national average at 7.17% but the 22% devoted to healthcare is much higher than the national average of 16.8%. This means that consumers returning to normal patterns through activities ranging from doctor visits to dining out will have a significant determinant of the speed and shape of the recovery. In the next section, we turn our attention to near real time data showing how spending has changed across a broad range of categories.

9 To what extent has spending been affected?

Opportunity Insights,[2] a non-partisan and not-for-profit organization located at Harvard University, built a new, publicly available economic tracker that measures economic activity at a high frequency, granular level. Using anonymized data from several large businesses, credit card processors, payroll firms, job posting aggregators, and financial services firms, they construct statistics on consumer spending, employment rates, incomes, business revenues, job

[2]Data can be found at https://tracktherecovery.org

Figure 7: Share of spending by category in Alaska

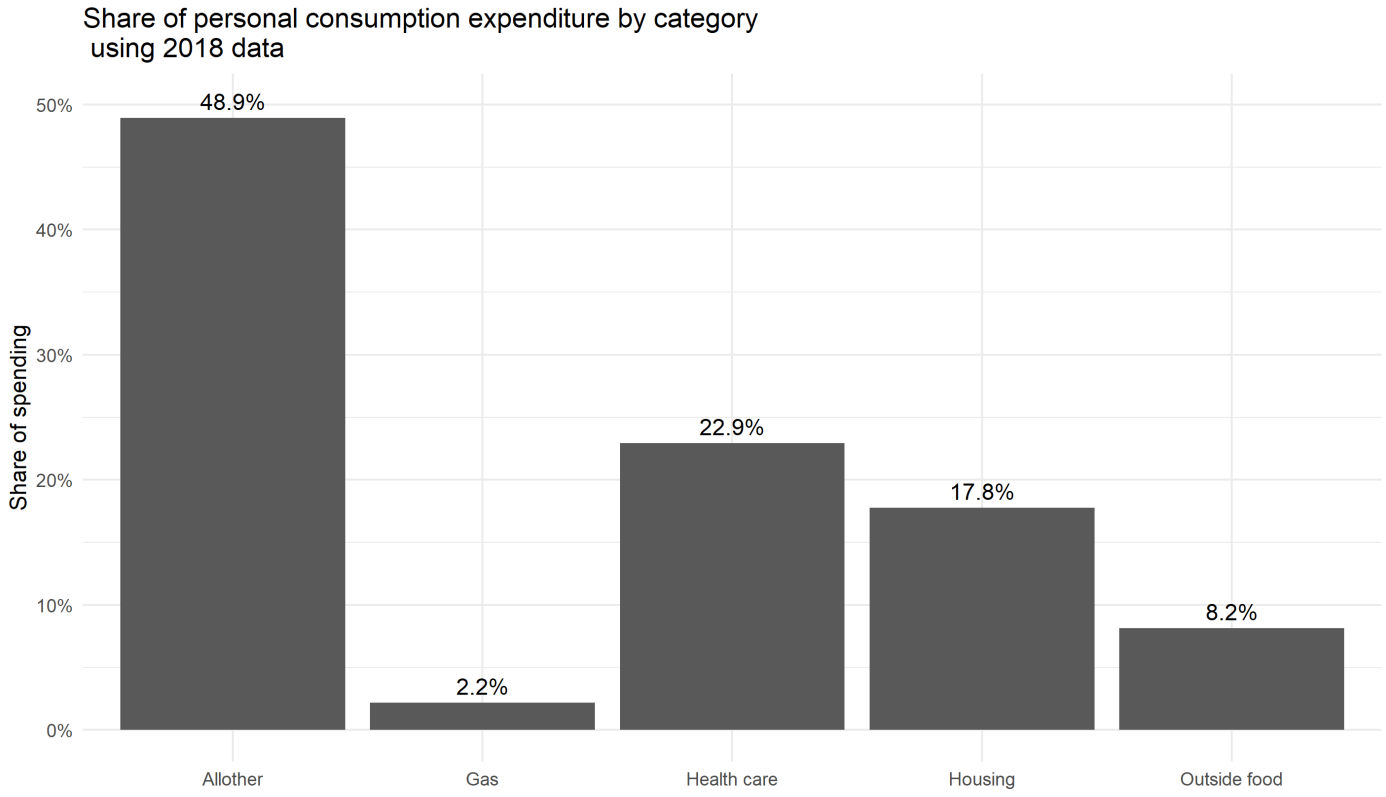
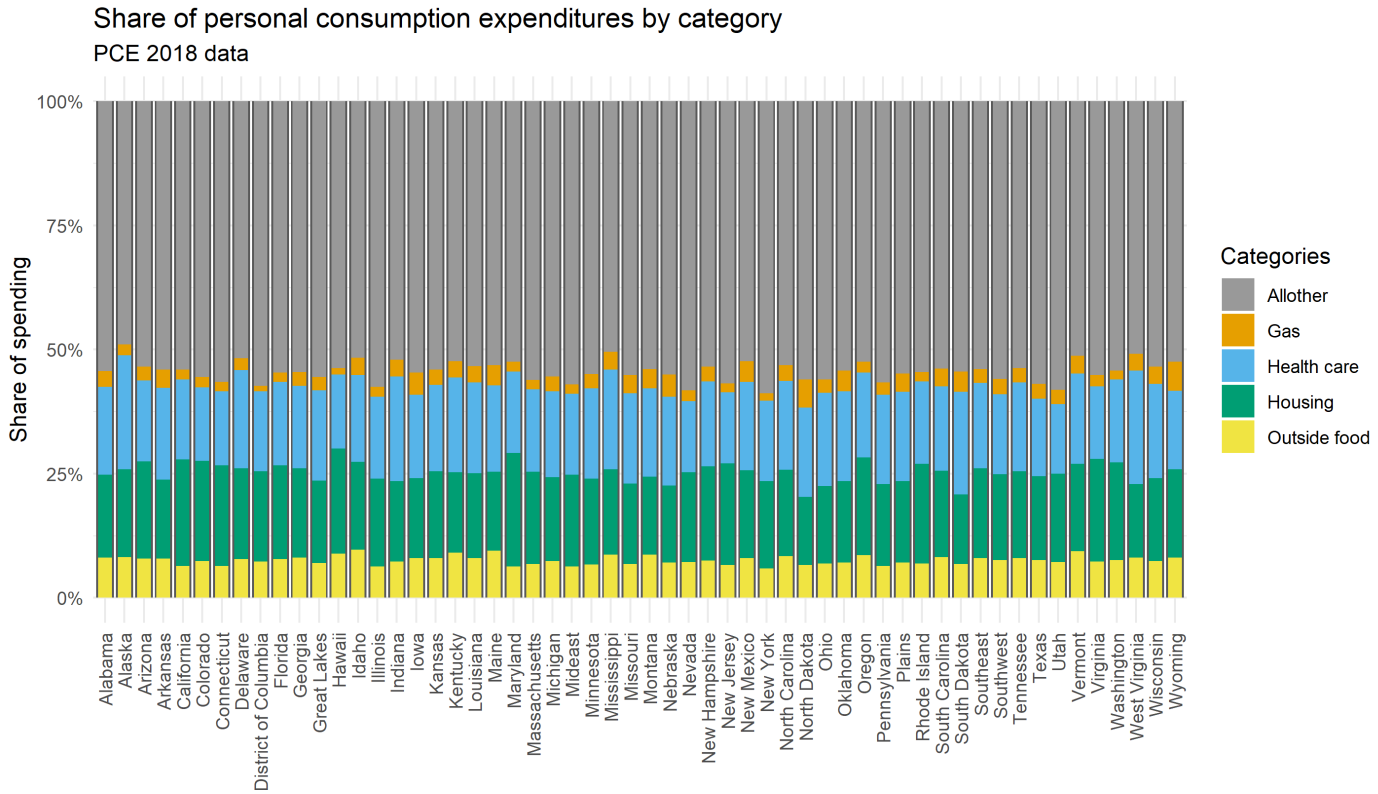
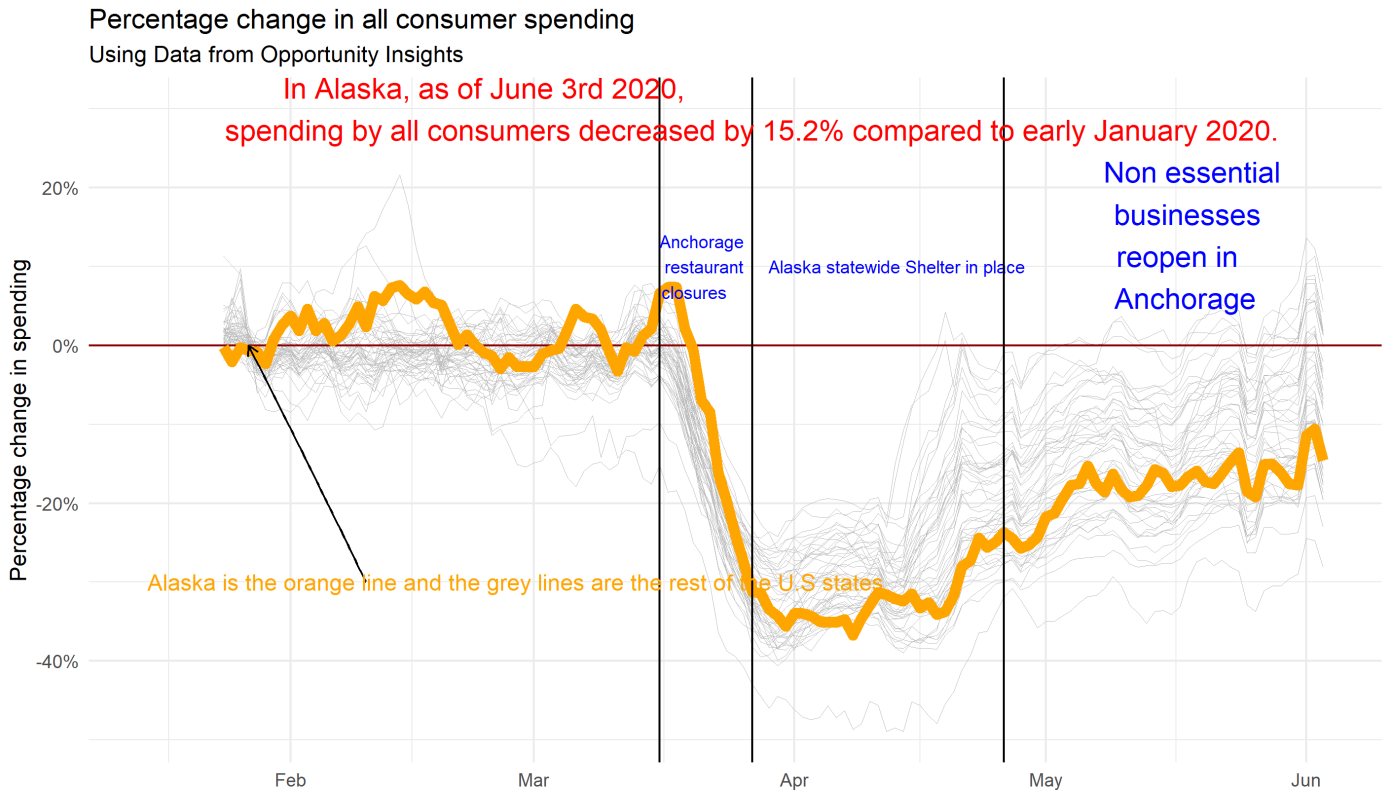


Figure 8: Share of spending by category in Alaska



postings, and other key indicators. We rely on this data to assess the near-real time changes in spending behaviors. We find, unsurprisingly, that spending activity has plummeted across the country as a result of the pandemic which forced establishment closures. Figure 9 shows the percentage change in spending in Alaska and other states relative to January. As of June 3rd, Alaska's spending levels are 15.2% lower than in January which puts it right in the middle of the declines experienced across the country. In the next few subsections, we break down the declines by sector. These spending reductions allow us to gauge the size of the shock experienced by sector which helps us evaluate the recovery paths.

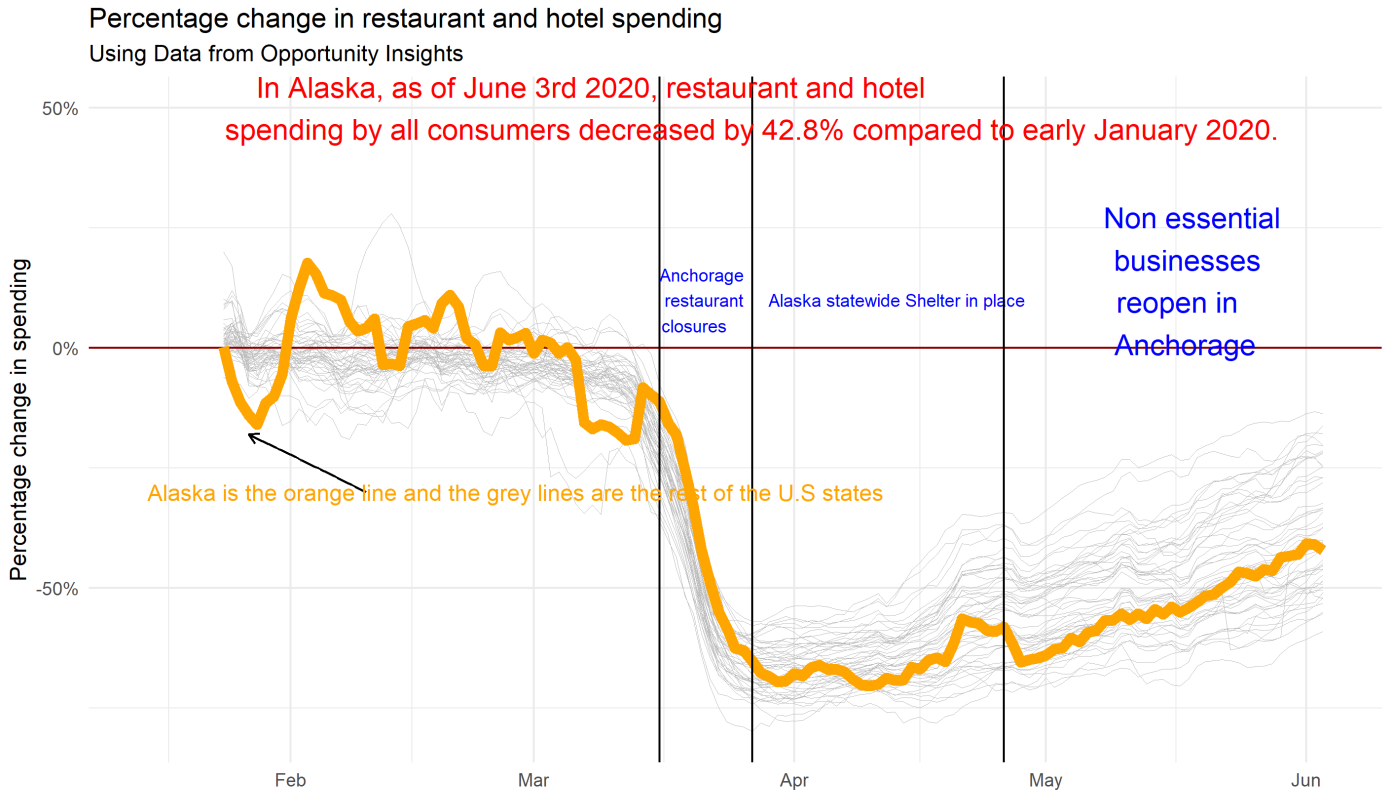
Figure 9: Change in spending levels



9.0.1 Restaurants

COVID-19 and the resulting closures had disparate effects across sectors. Establishments -such as grocery stores- were allowed to continue operating and in fact saw increases in spending at the beginning portion of the pandemic while others -such as restaurants- were required to ban dine-in service and provide limited take out options. In Figure 10, we show that spending decreased by 42.8% relative to the latter portion of January 2020.

Figure 10: Change in restaurant spending levels

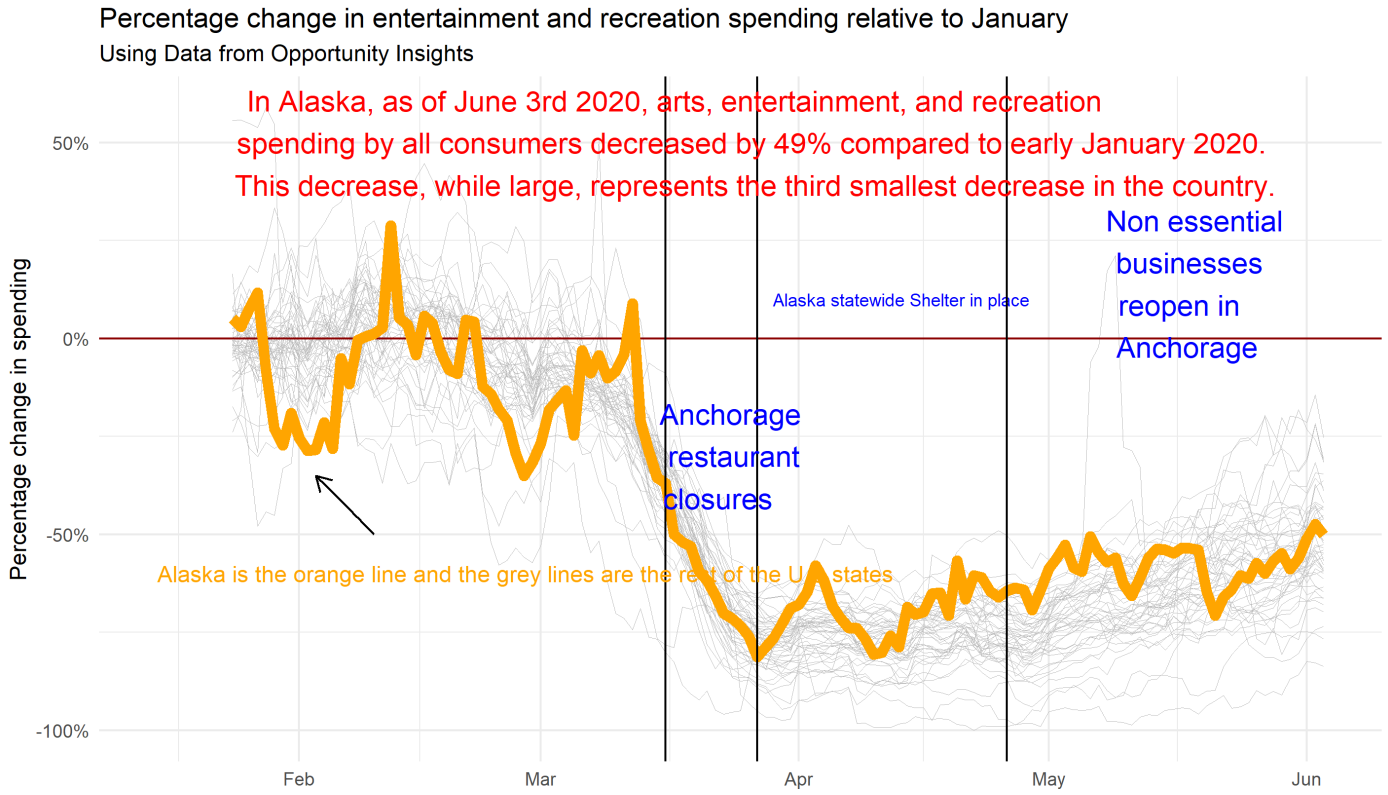


9.0.2 Entertainment and recreation

Arguably, there is no area of the economy that was hit harder than the Entertainment and Recreation as not only were establishments closed but social distancing rules guidance means

that it may take a while before events requiring large gatherings are held. This sharp decline in interaction opportunities is certainly reflected in the spending patterns as they are 49% lower in Alaska and 54% nationally relative to late January.

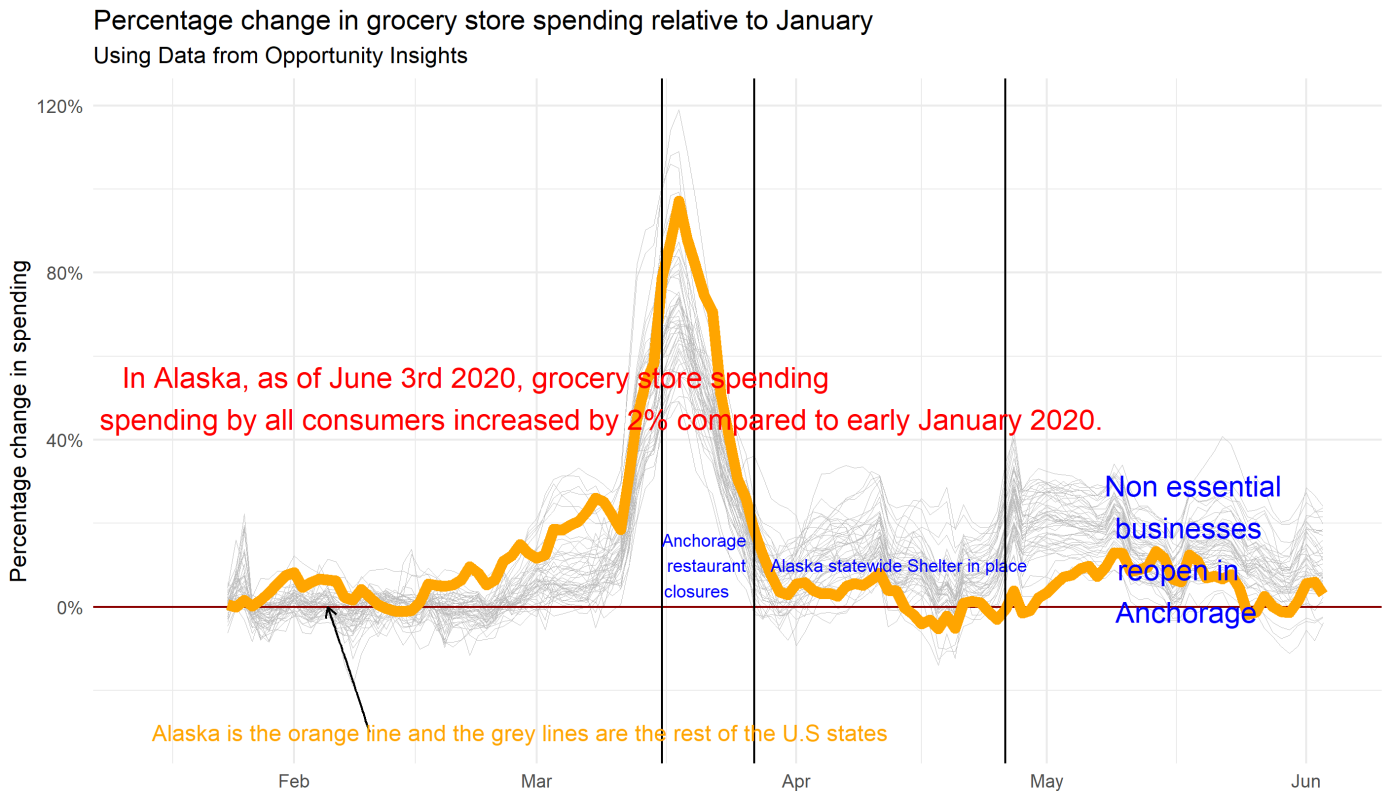
Figure 11: Change in entertainment and recreation spending levels



9.0.3 Grocery stores

In anticipation of the closures, there were nationwide increases in spending at grocery stores. The spike was, however, short lived in Alaska as spending in the week of June 3rd is only 2% higher than it was in the last week of January. At the national level, grocery spending remained elevated as it currently stands at 8.9% higher than late January.

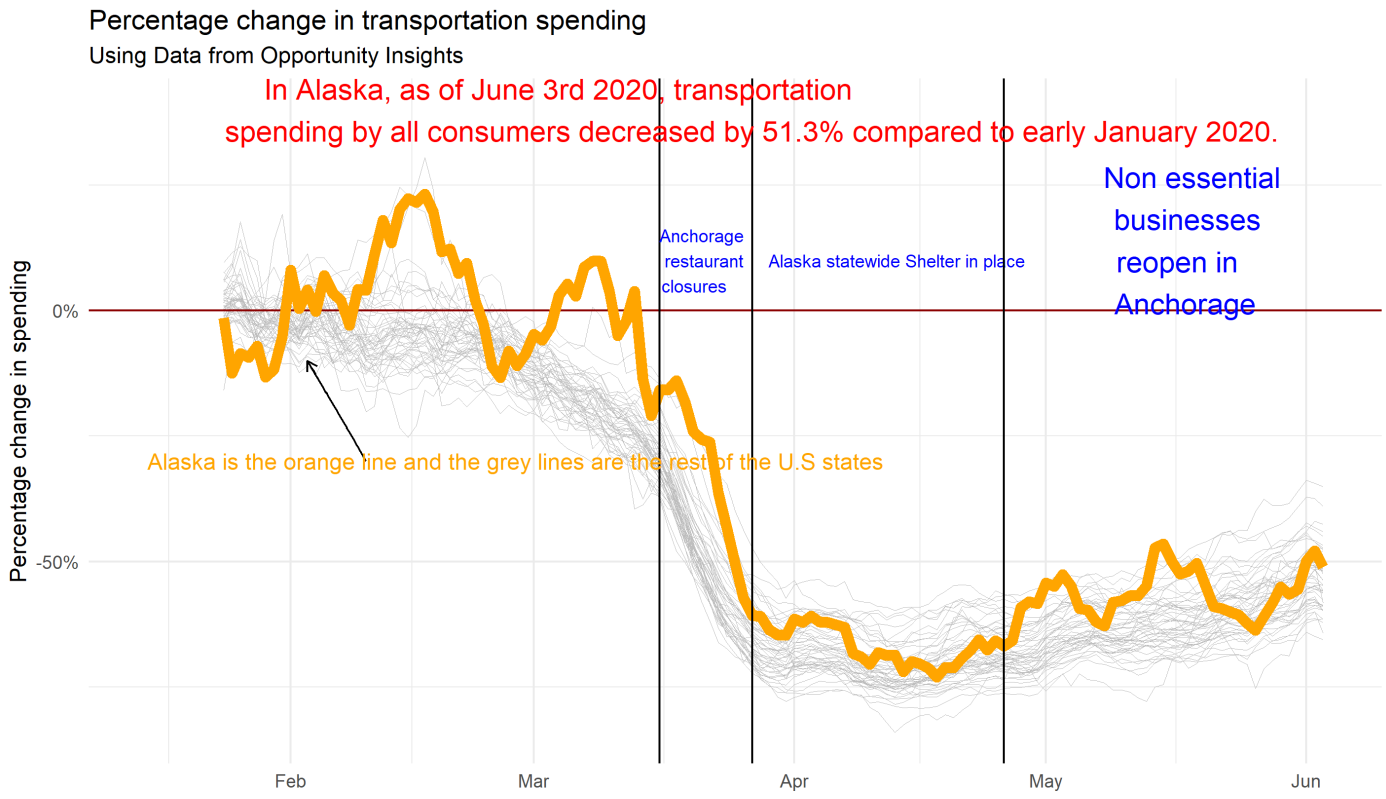
Figure 12: Change in grocery store spending levels



9.0.4 Transportation

Expenditures in the transportation sector are also markedly down as most individuals are working from home and travel is significantly lower. In Alaska, current spending levels are 51.3% below January while the national decline is almost 54.3%.

Figure 13: Change in transportation spending levels



9.0.5 Healthcare

The Alaska economy has grown more and more dependent on the healthcare related growth in employment. COVID-19 has resulted in a halting of non-essential procedures and a significant decline in spending. As of early June, Alaska healthcare spending is down by almost 37% relative to January. At the national level, the declines are less pronounced as current spending levels are at about 40% less than January levels.

Figure 14: Change in healthcare spending levels

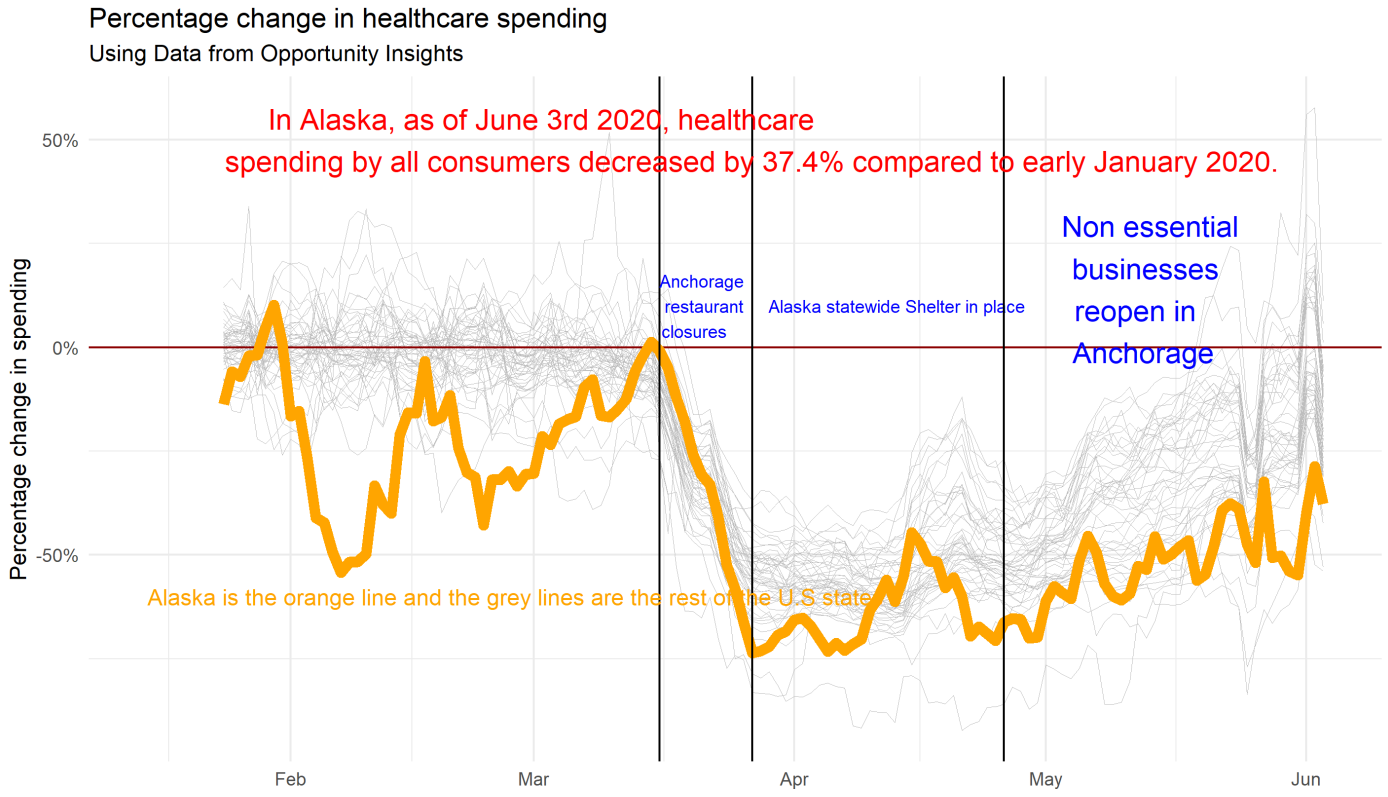


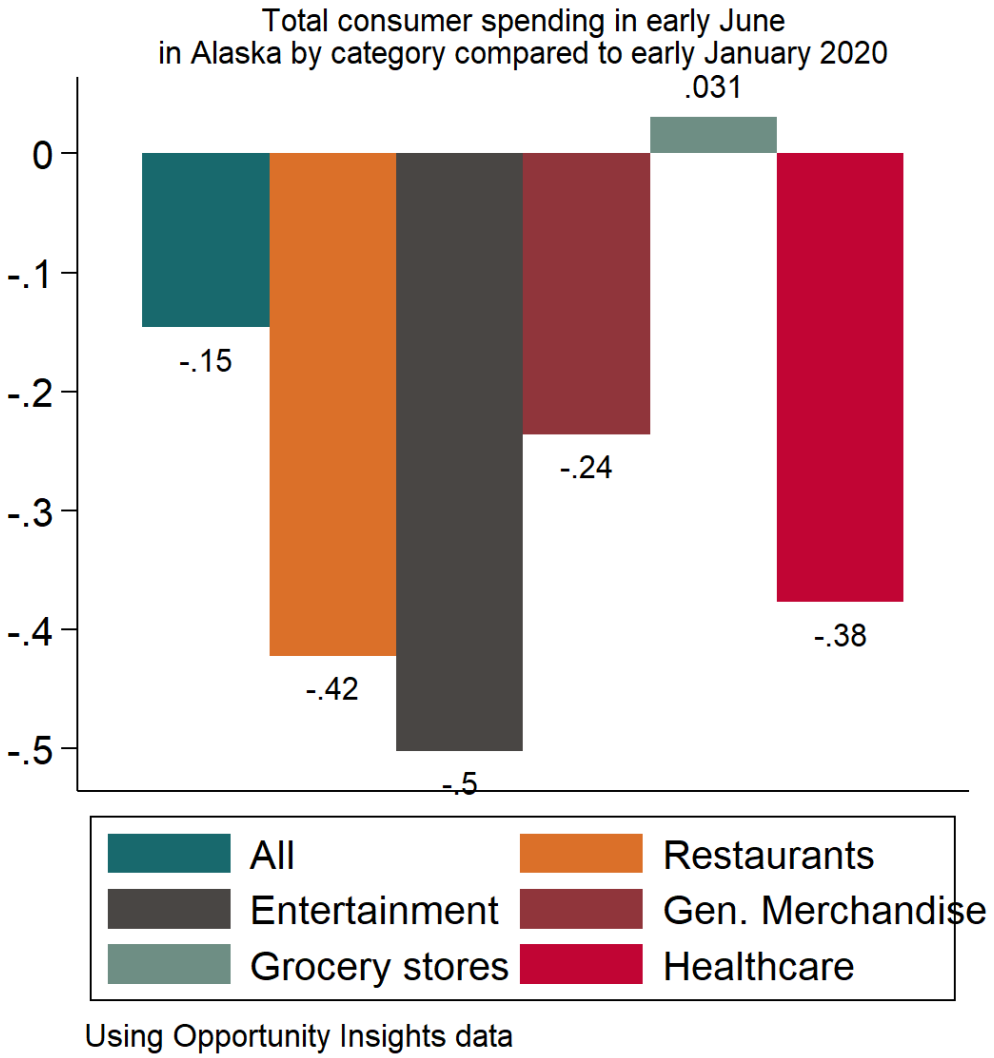
Table 6: Average declines by month across sectors

Aid	All	Entertainment	Restaurants	General Merch.	Grocery stores	Healthcare	Transportation
January	-0.00413	-0.063025	-0.0933	0.09481	0.0275	-0.0244	-0.086
February	0.0253	-0.1005	0.0508	-0.0309	0.0507	-0.3059	0.05436
March	-0.0761	-0.408	-0.2900	-0.1204	0.3761	-0.2894	-0.2069
April	-0.308	-0.680	-0.6496	-0.3898	0.0123	-0.6319	-0.6607
May	-0.183	-0.5668	-0.5945	-0.259	0.0815	-0.5579	-0.557

9.1 Summary of the opportunity insights data

It is fairly obvious from all the sector specific graphs above that spending declined precipitously as a result of the pandemic and reached its trough in early April. Since then, there has been a gradual increase as different parts of the economy have reopened. The increases suggest there is pent up demand that is being reflected in the higher spending levels. However, it is important to note that levels of spending are still well below pre-pandemic levels. Furthermore, these comparisons are relative to January which means that they do not account for the seasonal bump in spending Alaska typically experiences during the summer months. Table 6 above shows the average spending declines by month relative to January. In the graph below, we show the summarized spending declines by category in Alaska. As we explain in the previous section, the declines are large but differ across sectors.

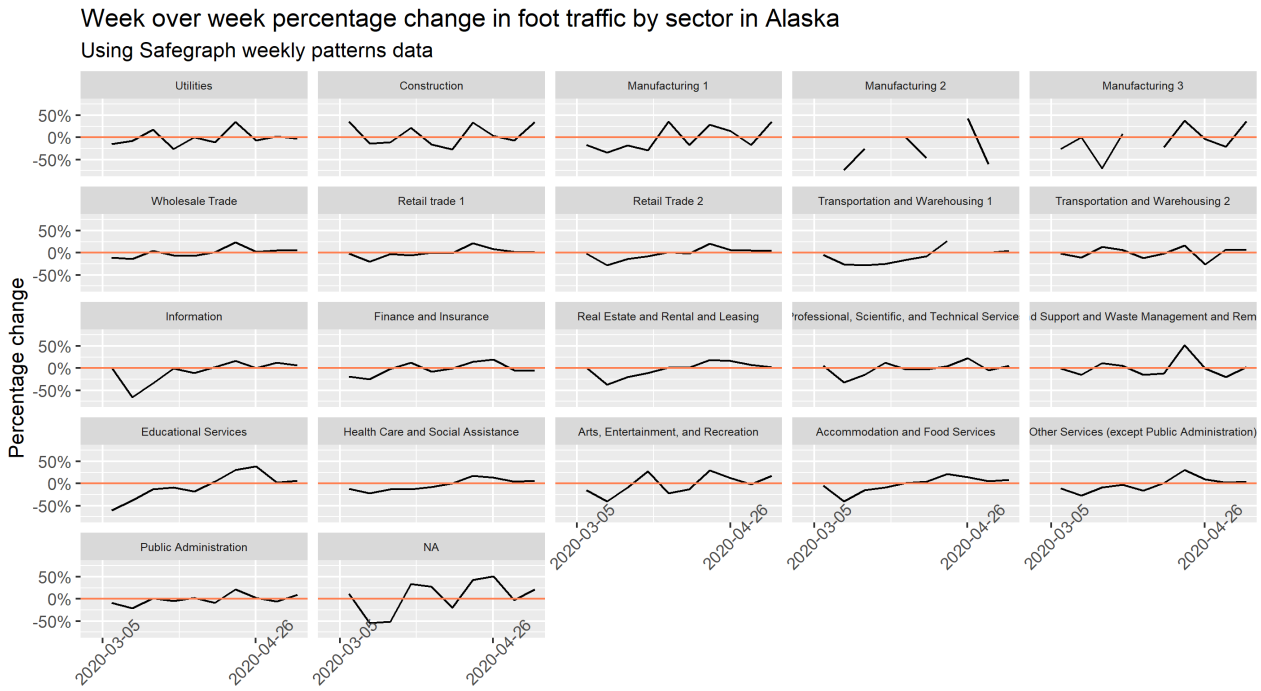
Figure 15: Change in consumer spending by category



10 Foot traffic data by sector

Another useful measure of economic activity is foot traffic data. I use Safegraph data to examine the change in foot traffic across industries at the 2 digit NAICS level. I show that foot traffic declined considerably across sectors. Unsurprisingly, the declines are largest in consumer facing industries. Since the beginning of re-opening measures, there is a fairly robust recovery in visits but the level of traffic in, for example, Accommodation and Food Services as of the week ending May 10th is only 73% of the levels observed in the first week of March. Similarly, Entertainment and Recreation establishments are at about 68% of the March levels. In Figure 16, I show the variation in both initial declines in traffic and recovery across the different sectors. Across all sectors, foot traffic reached its trough in the week ending April 19th when it reached 49% of the week ending March 8th. Activity has picked up with week over week increases since then. As of the week ending May 17th, foot traffic is at almost 75% of where it was before the pandemic. In the next section, we turn out attention to more traditional real time by showing initial claims data which measure the number of individuals filing for unemployment insurance on a weekly basis.

Figure 18: Change in foot traffic by sector



11 What does this all mean for businesses?

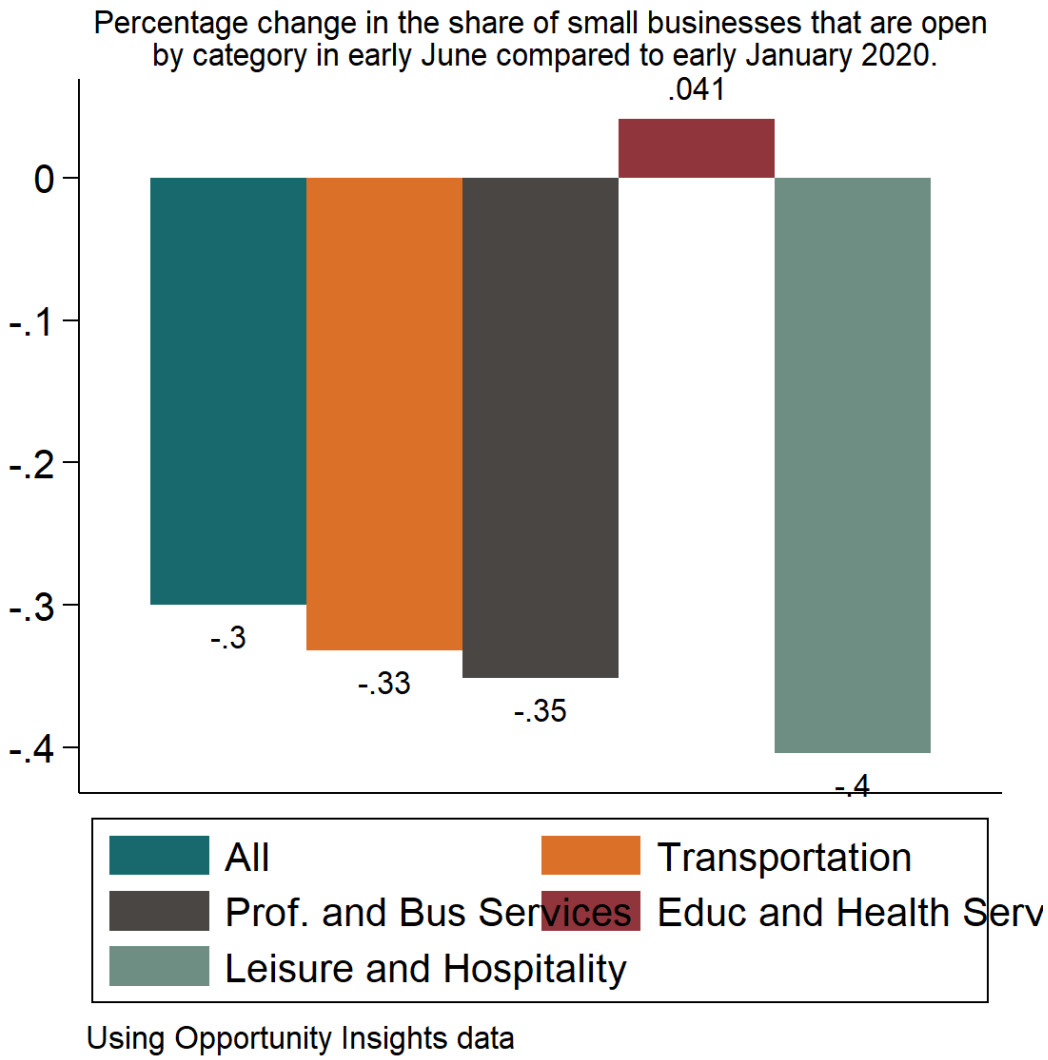
In Figure 17, we show that as of June 8th, the number of businesses open decreased by 32% in Alaska relative to January which is very close to the national average decline of 29%. All businesses have now been allowed to re-open in Alaska which should mean that some employees who have filed for unemployment will start being called to work. We still do not know which share of businesses have permanently closed. The medium term recovery hinges on three components:

A) Household spending patterns.

B) The share of businesses that have permanently closed.

C) The share of the almost 118,000 individuals who have filed for unemployment insurance who will become permanently separated from their previous employers.

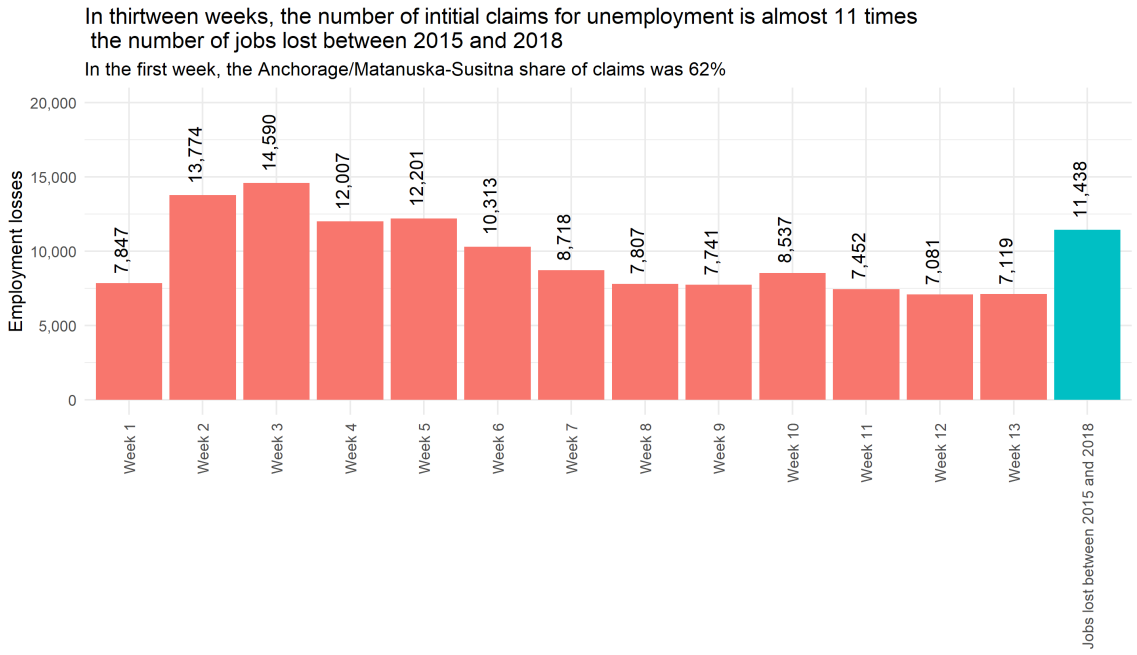
Figure 17: Change in the share of open businesses by category



12 How does this translate to employment changes?

In Figure 18, we show that in just twelve weeks, there have been 118,000 initial unemployment insurance claims filed which represents almost ten times the total jobs lost between 2015 and 2018.

Figure 18: Initial claims by week starting week ending March 23rd



As of the week ending June 6th, there are 45,276 continuing claims which is about a 2,000 claim decrease from the previous week. This number represents the number of individuals who are continuing to receive unemployment insurance. Of concern is that the number of initial claims has remained elevated at around 7,000 per week even after the re-opening of the economy. As significant as these declines in spending and employment have been, they could have been much more pronounced in the absence of the significant federal aid which we describe in the next section.

13 Federal aid

13.1 Individuals

The Federal government's response to the pandemic has been significant by making resources available to households, businesses, and states. The aid to individuals has come in two forms. The first is the Economic impact payments which were 1,200 for each individual and 500 dollars per child with a complete phase out at $99,000 per person or $198,000 as a couple. As of May 22nd, there have been 333,429 payments totaling $580,774,111 dollars. The second form of aid has come in the form of the Federal Pandemic Unemployment Compensation (FPUC) which is an emergency program designed to increase unemployment benefits for millions of Americans affected by the 2020 novel COVID-19 pandemic. Under FPUC, eligible people who collect certain unemployment insurance benefits -including regular unemployment compensation- will get an extra $600 in federal benefits each week through July 31, 2020. In Table 7 and Figure 19, we show that while the employment shock has been substantial, the income effect is much smaller due to the generous federal unemployment insurance and the initial economic impact payments. As a result of these distributions, many of the laid off individuals are earning more from the aid than in the previously held positions. This liquidity should help with the economic recovery as more employees are reattached with either their previous employer or a new employer.

Table 7: Difference between monthly aid and lost wages

Yearly wages	Monthly wages	Federal UI	Stimulus checks	State UI	Difference between Aid and lost wages
25,000	2,083	2,400	1200	944	$2,460
35,000	2,916	2,400	1,200	1292	$1,975
45,000	3,750	2,400	1,200	1480	$1,330
55,000	4,583	2,400	1,200	1480	$496
65,000	5,416	2,400	1,200	1480	($336)
75,000	6,250	2,400	1,200	1480	($1,170)
85,000	7,083	2,400	700	1480	($2,503)
95,000	7,916	2,400	200	1480	($3,836)

Note: all calculations are for a single individual with no dependents.

It is important to note that this generous assistance is set to end at the end of July which could represent an income cliff as the state's unemployment insurance payments will not be sufficient to replace pre-pandemic incomes. In Table 8, we present the amounts distributed in the form of both state and federal unemployment insurance by sector in the month of April. In just one month, more than 48,000 individuals received benefits totaling more than 126 million dollars.

Figure 19: Difference between Federal/state aid and lost wages

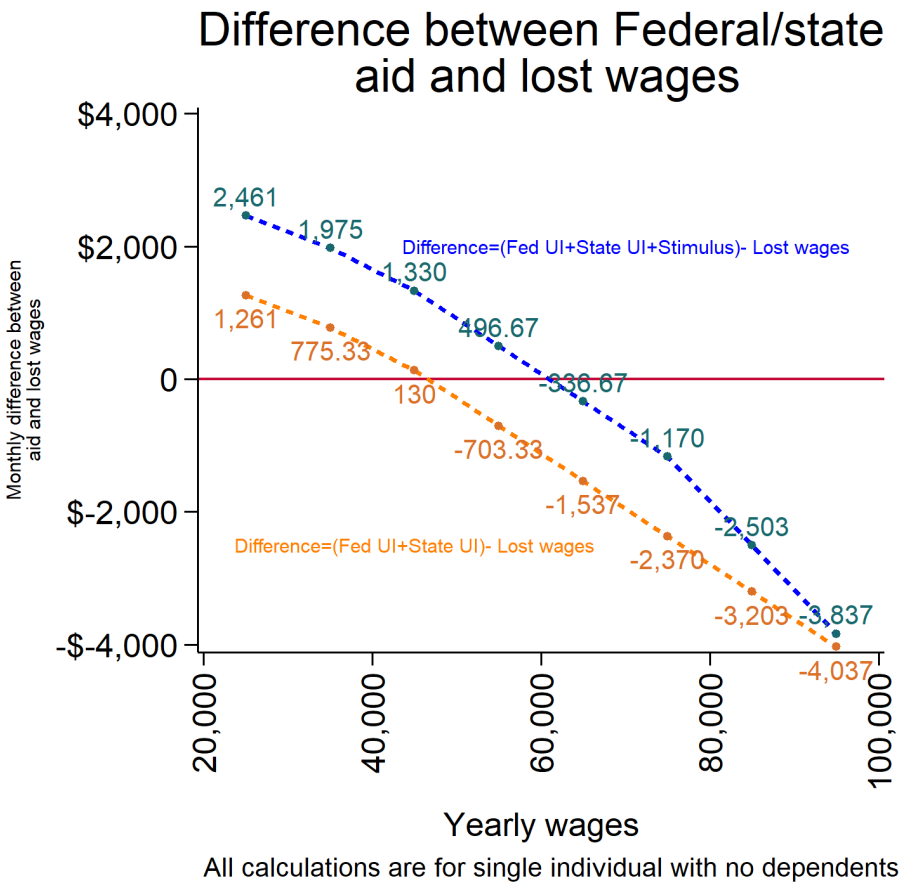


Table 8: Number of claimants and amounts distributed by industry in the Month of April

Industry	Number of claimants	Amounts
Agriculture	215	560,717
MiningHardRock	263	739,164
Mining oil/gas	1903	4,736,122
Utilities	122	333329
Construction	4998	1.41e+07
Food Manufacturing	2553	5,147,284
wood Manufacturing	58	140,850
Other Manufacturing	626	1,725,322
Trade	6181	1.53e+07
Transportation	3590	8,957,566
Information	398	1,059,874
Finance/Insurance	440	1,183,622
RealEstate	692	1824801
Professional	1225	3,105,411
Management	76	187297
Administrative	2012	5,104,844
Education	1340	3,346,501
Health	5936	1.65e+07
Arts, Entertainment and Recreation	1309	3,385,223
Accommodation	3083	8,272,324
Food service	6408	1.73e+07
Other	2084	5,757,973
PubAdm	1972	5,061,031
Unc	754	2,076,130
Total	**48,238**	**126 million**

13.2 Businesses

In addition to aid directed towards individuals, there were a few programs that directed resources to businesses with the most important one being the Paycheck Protection Program (PPP). PPP is a loan designed to provide a direct incentive for small businesses to keep their workers on the payroll. SBA will forgive loans if all employees are kept on the payroll for eight weeks and the money is used for payroll, rent, mortgage interest, or utilities. Alaska businesses have received a total amount of 1.3 billion dollars in the first two rounds of PPP. In addition to PPP, many small businesses have received an EIDL which is a loan advance that does not need to be repaid. So far, 1,933 businesses have been approved for loans for a total amount of $ 143,065,400 million dollars.

Table 9: Paycheck protection program through May 8th

Aid	**Round1**	**Round 2**	**Total**
Number of loans	4,842	4,750	9,592
Total loan amounts	922 M	368 M	1.3 B

13.3 State

The state has also received 1.5 billion to assist with the fallout from the pandemic. This funding is provided to the State for items that "are necessary expenditures incurred due to the public health crisis with respect to the Coronavirus Disease 2019 (COVID-19)." Expenditures of the Coronavirus Relief Fund are constrained by guidance released by the US Treasury on April 22. According to the Division of Community and Regional Affairs, there has more than 271 million dollars distributed to communities across the state.

Before presenting the forecasts by sector, we present information on sectoral employment through May 2020, Alaska's gross domestic product, and national spending projections.

14 Employment breakdown

Figure 20: Monthly employment between January 2018 and May 2020

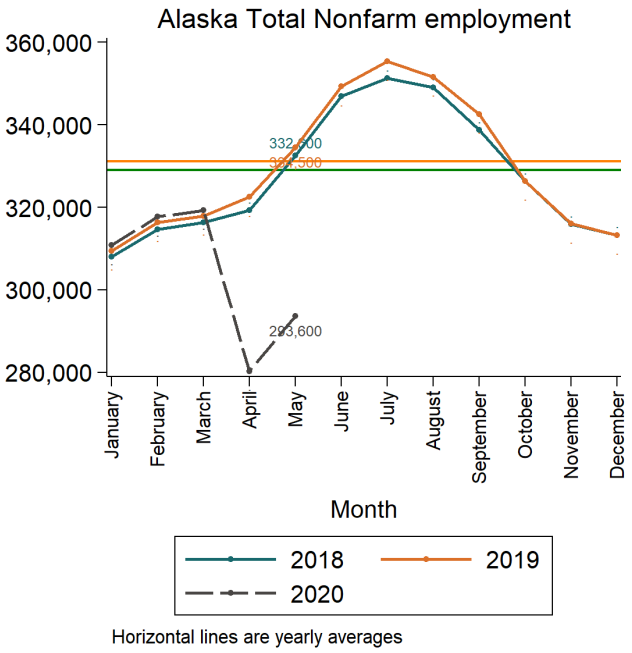
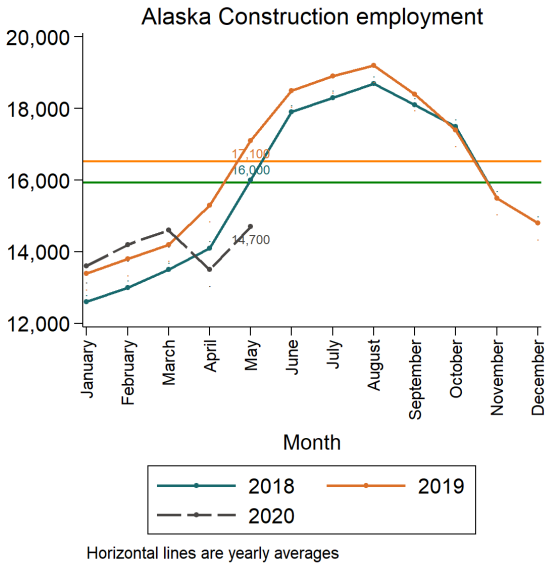
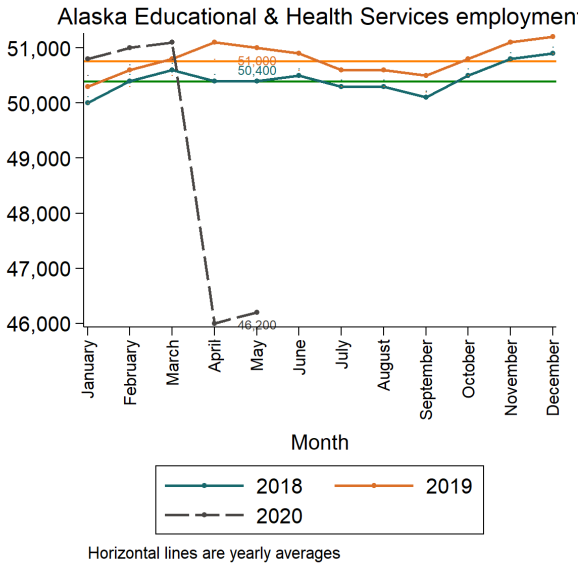
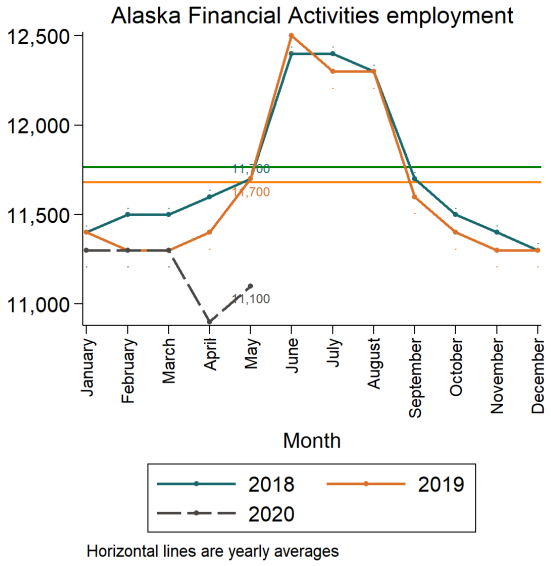


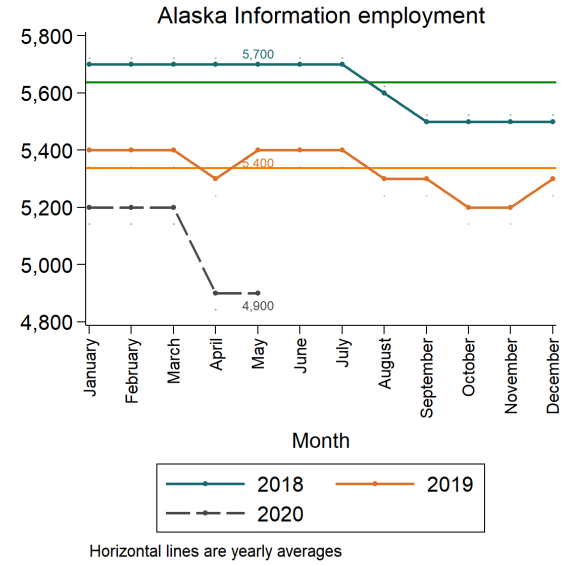
Figure 20 shows monthly employment for 2018, 2019, and the first five months of 2020. May 2020, the most recent month for which we have complete data, shows that nonfarm employment is 40,900 or 12.2% below May 2019. These employment losses erase multiple decades of growth. In April, the sector which experienced the most significant decline between April 2019 and April 2020 was Leisure and Hospitality which lost 48% of its employment or 15.600 jobs. All sectors with the exception of Federal government lost a significant number of jobs. In fact 6 of the 13 major sectors experienced double digit percentage decreases. In May 2020, all sectors were negative but Retail and Leisure and Hospitality showed slight improvements relative to April. As we can see from most sectors employment figures, Alaska employment is highly seasonal with a large bump in activity that typically happens over the summer. Due to significant declines in travel, it is unlikely we will experience a large seasonal bump this year.

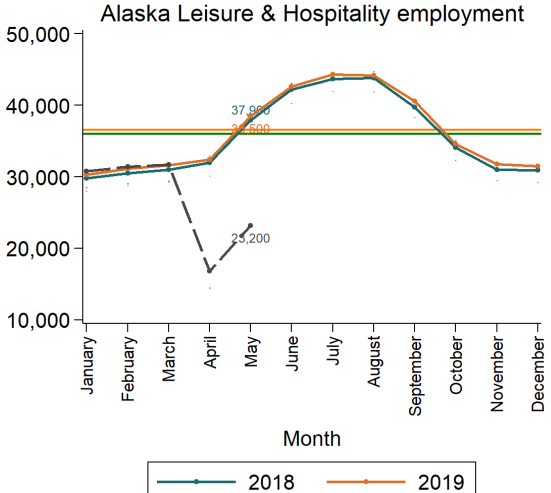
Sectoral employment between January 2018 and May 2020

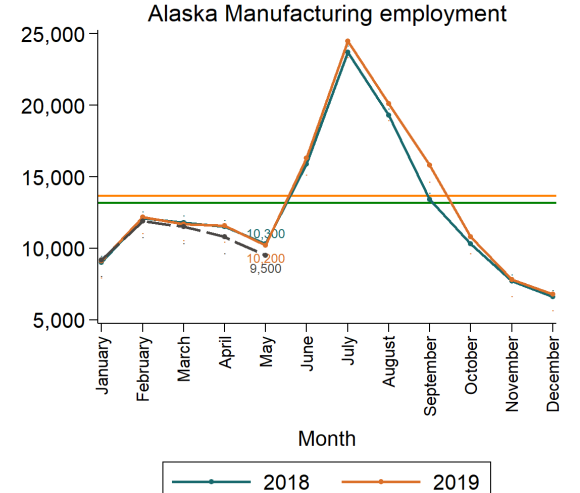




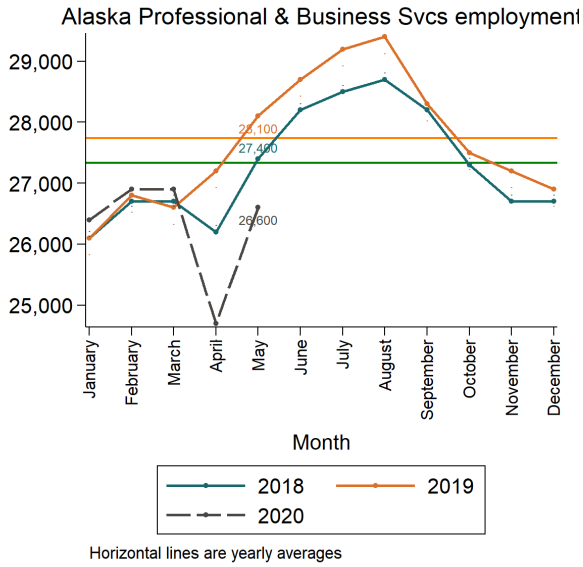


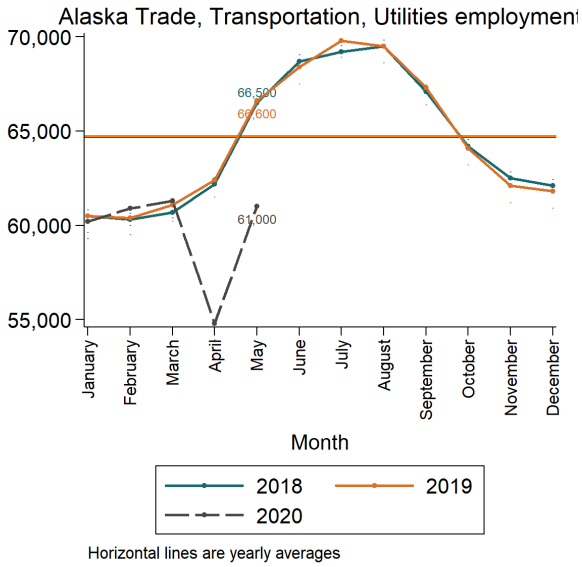


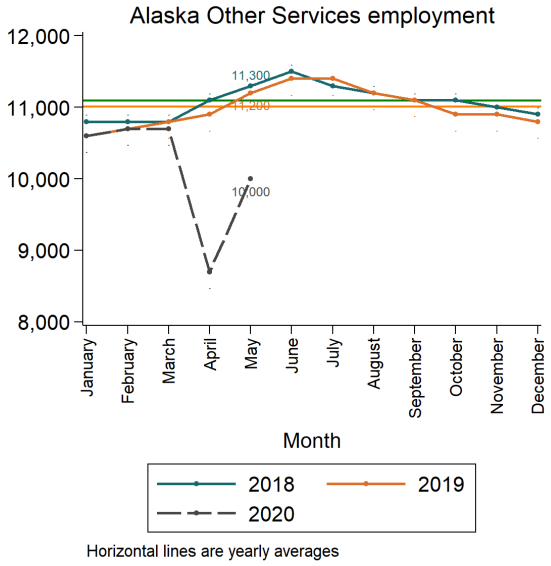


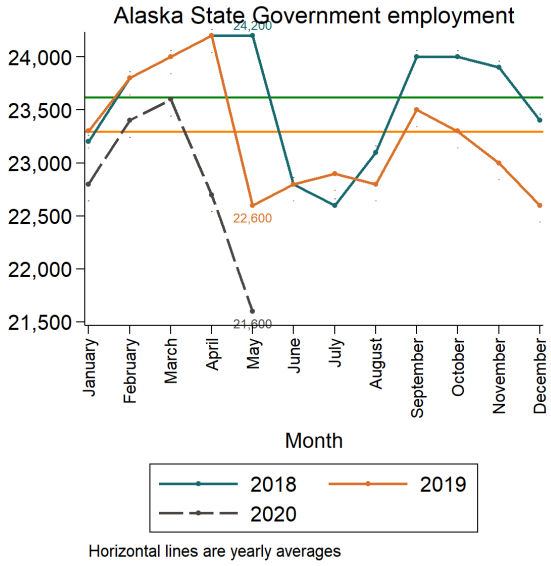


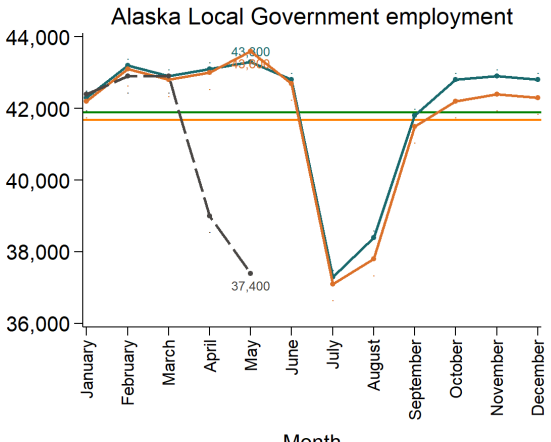
Sectoral employment between January 2018 and April 2020

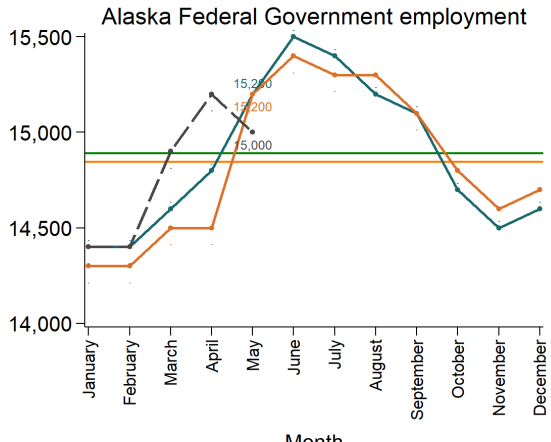






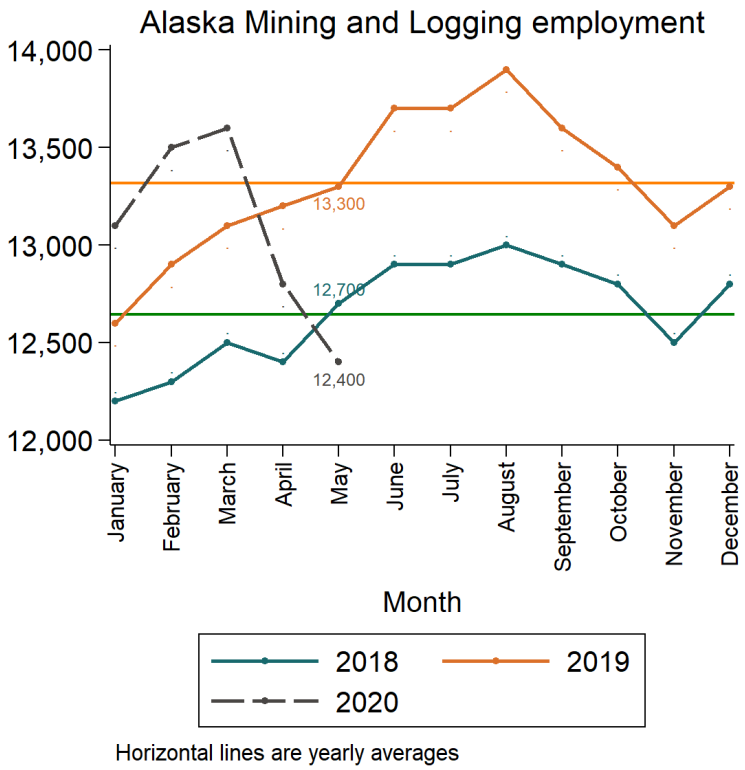






Sectoral employment between January 2018 and April 2020

Figure 3: Mining employment



15 Alaska GDP

Alaska's Gross Domestic Product (GDP), like Gross Domestic Income (GDI) for the nation, is measured as the factor incomes earned and the costs of production. Specifically, each sector's GDP is the sum of Labor income, Business Taxes, and Capital income. During this most recent downturn, both labor income and capital income declined significantly due to the mandated closures. In the table below, we show Alaska's GDP by quarter which shows the contribution of each sector. The four largest private sector contributors are The Mining, quarrying, fishing and hunting sector, Transportation and warehousing, Professional and Business services, and Healthcare. We also show wages as a share of GDP to help gauge sectoral vulnerability to layoffs. In the next two sections, we discuss the national consumer projections and the most

Description	First Quarter	Second Quarter	Third Quarter	Wages	Wages as a share of GDP
All industry total	54,941	55,494.6	55,429	18,760	33.80%
Private industries	43,966	44,448	44,281		
Agriculture, forestry, fishing and hunting	449.5	432.4	439.3		
Mining, quarrying, and oil and gas extraction	8,697.5	8,910.4	8,423.5	1,912	21.46%
Utilities	806	799.5	811.9	203	25.44%
Construction	2,072.2	2,036.9	2,029.3	688	38.06%
Manufacturing	1768.1	1809.4	1837.5		
Durable goods manufacturing	245.5	244.2	248.3		
Nondurable goods manufacturing	1522.7	1565.2	1589.2		
Wholesale trade	1445.8	1453	1491.5		
Retail trade	2360.4	2396.9	2439.5	11.71	48.022%
Transportation and warehousing	7,459.2	7,505	7,542.6		
Information	1,327.7	1,349.5	1,365.8		
Finance and insurance	1,260.7	1,271.6	1,259.9		
Real estate and rental and leasing	5,335.3	5,393.8	5,446.7		
Professional, scientific, and technical services	1,955	2,000	2,015.	1,812	89.91%
Management of companies and enterprises	425	430	441.7		
Administrative services	1,072.9	1,104.5	1134.9		
Educational services	214.7	214.9	216.3		
Health care and social assistance	4,474.9	4,497.7	4526.9	2681.046	56.9%
Arts, entertainment, and recreation	330	334.4	339.6	117.58	34.62%
Accommodation and food services	1600.6	1595.4	1604.8	792.34	49.3%
Other services	910.7	911.9	913.7		
Government and government enterprises	10,975.3	11,046.5	11,148.3		

recent employment data from the national economy before presenting sector specific forecasts.

16 National consumer spending projections

The CBO projects that consumer spending will fall by 11.6 percent in the second quarter of 2020 (or decline by 39.0 percent at an annual rate) as social distancing measures constrain and dampen spending.

The CBO's projection argues "that the contraction began as households pulled back from spending in several categories-especially travel, entertainment, and services that require close personal proximity (such as hair care and dentistry). A large decline in the stock market from mid-February to mid-March also prompted some households to cut spending. Many more households probably decreased their spending as unemployment began to rise during that period, some as a direct response to the loss of jobs and income and others out of fear of possible job loss."

They further argue that as restrictions on economic and social activities are gradually lifted, the main factor that is suppressing consumer spending during the second quarter will

begin to abate during the latter part of 2020. Largely for that reason, CBO expects that consumer spending will rebound and grow at an average annual rate of 22.6 percent during the second half of 2020. Although less than its peak in April, some degree of social distancing is still expected to persist through that period and thus partially constrain consumer spending.

It is important to note that they explicitly mention mention consumer transfers as one of the reasons for the rebound in activity.

They find that the pace of recovery moderates during 2021 in CBO's projections, and consumer spending grows by 1.2 percent on a fourth-quarter-to-fourth-quarter basis. The effects of measures put in place by the federal government to support income wane, and some degree of social distancing still partially inhibits certain activities. Workers who experience lengthy spells of unemployment, significantly lower income, and uncertain prospects during 2020 will probably remain cautious for some time even after they resume work, and spending by such households will contribute little to the growth of demand in 2021. Consumer spending in the fourth quarter of 2021 is projected to be 2.9 percent lower than it was in the fourth quarter of 2019.

Some recent high frequency data such as retail data, hotel and restaurant bookings, as well as travel traffic shows that the U.S economy is making some progress towards a recovery even if employment levels are well below the same month last year. In the next section, we discuss the most recent national employment numbers.

17 A national recovery?

The Bureau of Labor Statistics has released employment numbers at the national level on June 5th showing that seasonally adjusted employment in May 2020 is 2.5 million jobs higher than April 2020. It also potentially signals that PPP has significantly helped employers call back their workers as economies around the country started re-opening. In Figure 21, we show

the percentage change in employment relative to April 2020. There were significant gains across a number of sector but the most important increase was in Leisure and Hospitality which experienced the largest declines in the months of March and April. Construction and Healthcare also experienced robust bounce backs even if their employment levels are much lower the previous year. In Figure 22, we show that Federal government employment is the only sector with more employment in May 2020 than in May 2019.

Figure 21: Percentage change in seasonally adjusted employment between April 2020 and May 2020

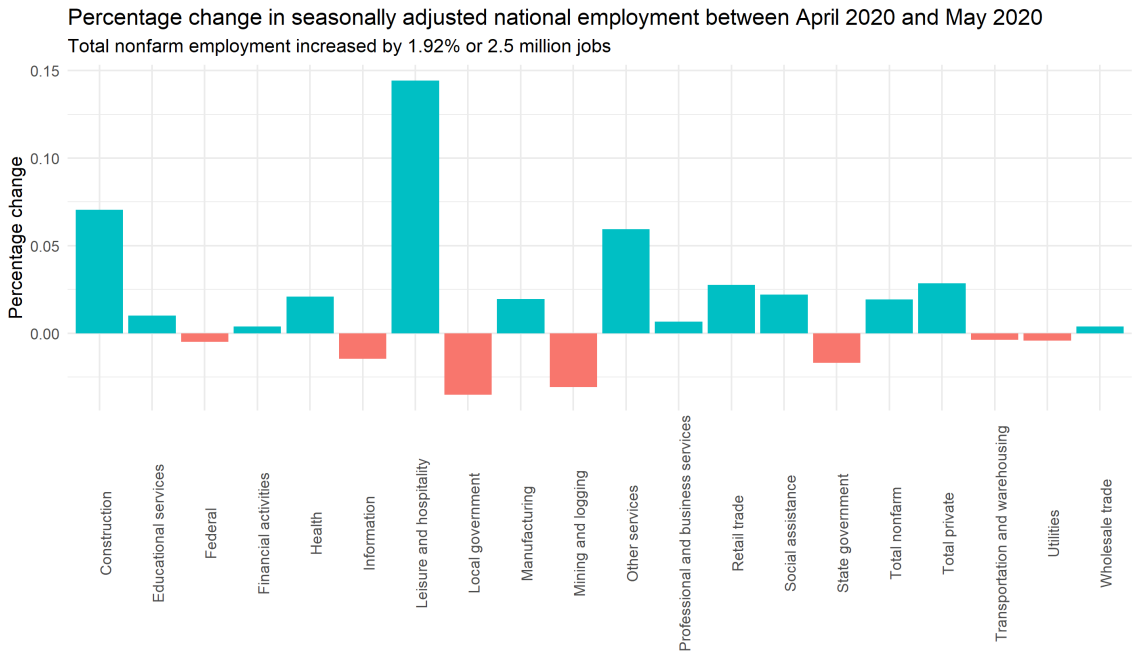
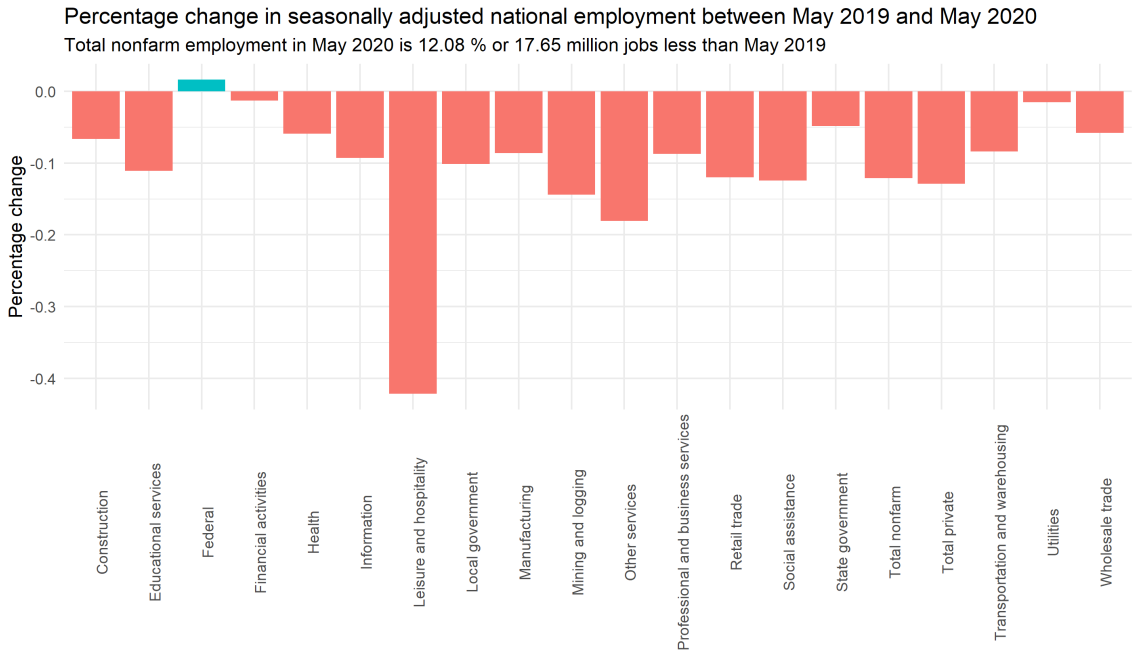


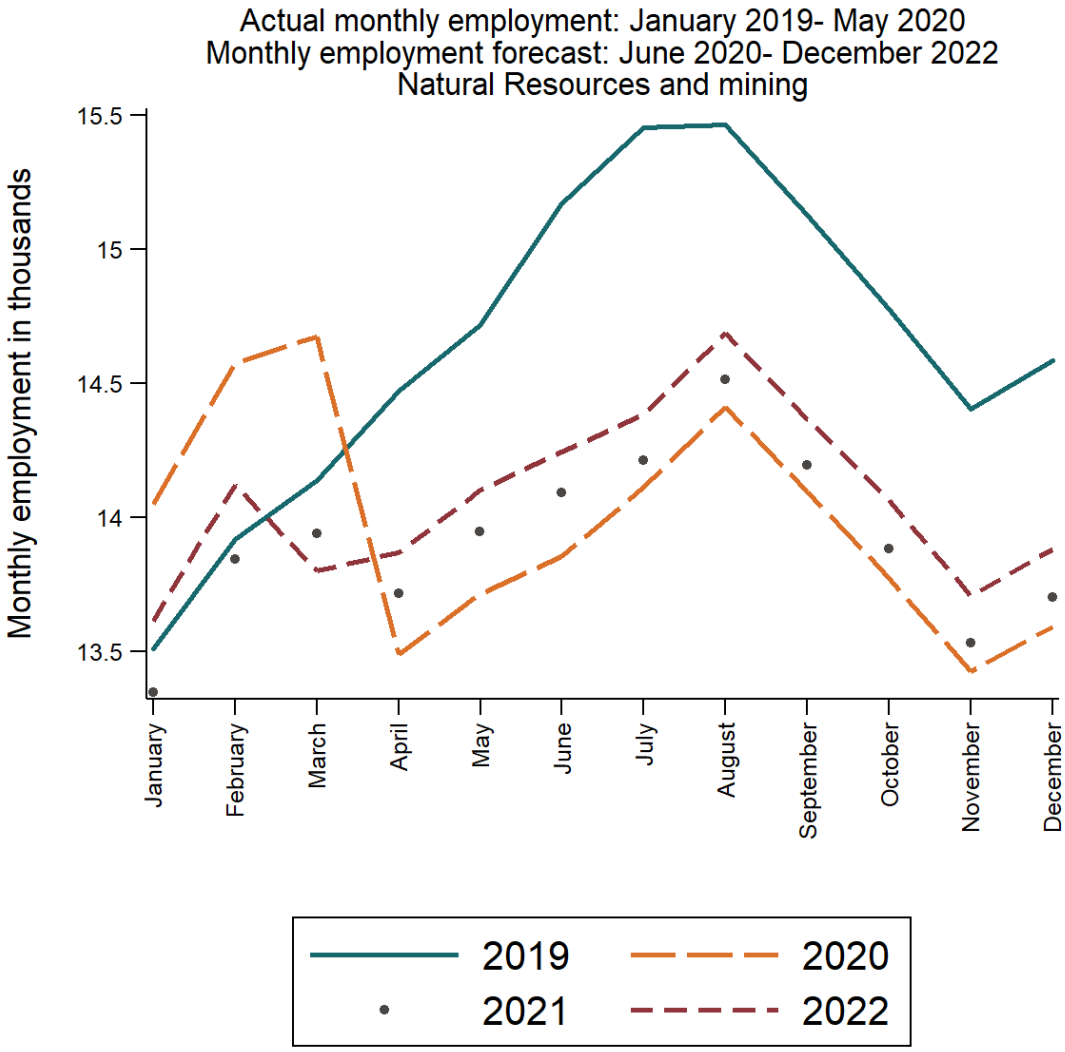
Figure 22: Percentage change in seasonally adjusted employment between May 2019 and May 2020



18 Natural resources and mining

In Figure 23 and Table 10, we present the forecast of the Natural resources and mining sector. An updated forecast by the Alaska Department of Revenue shows that compared to the Spring 2020 forecast and with revised oil price and production estimates, Unrestricted General Fund (UGF) revenue could be between $115 and $125 million lower than forecast for FY 2020, between $359 and $476 million lower than forecast for FY 2021, and between $161 and $308 million lower than forecast for FY 2022. Updated oil price assumptions were based on Brent futures market closing prices as of April 30, 2020 and assumed that the ANS/Brent differential would return to zero by June 2021. Both Prices and production have dropped as a result of the pandemic and while it is unlikely we will get back into negative territory any time soon, there will still be downward pressure on prices due to a supply glut and slow increases in demand as economies re-open. Therefore, the outlook for oil and gas will be one of continued downsizing at least in the short run. In 2020, we anticipate the economy to end the year with around 660

Figure 23: Percentage change in seasonally adjusted employment between May 2019 and May 2020



Alaska Natural Resources Mining employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	10.84	11.08	11.23	11.62	11.43	11.67	12.18	12	11.55	11.31	10.87	10.51	11.36
2003	10.32	10.57	10.78	10.79	11.1	10.99	11.08	11.1	10.92	10.56	10.2	10.08	10.71
2004	9.726	10.08	10.33	10.79	11.07	11.17	11.3	11.46	11.1	10.74	10.49	10.59	10.74
2005	10.29	10.74	11.02	11.3	11.41	11.73	12.1	12.22	12.19	12.02	11.9	11.9	11.57
2006	11.5	11.96	12.39	13.12	13.46	13.84	13.78	13.96	13.94	13.56	13.42	13.38	13.19
2007	13.41	13.85	14.1	14.43	14.48	14.97	15.09	15.3	15.22	15	14.61	14.61	14.59
2008	14.56	14.86	15.14	15.39	15.78	16.25	16.56	16.78	16.69	16.43	16.22	16.52	15.93
2009	15.75	15.91	15.98	15.92	16.17	16.54	16.14	16.15	15.77	15.03	14.79	14.66	15.73
2010	14.4	14.63	15.02	15.39	16.04	16.93	17.46	17.46	17.14	16.64	16.22	16.19	16.13
2011	15.37	15.78	15.97	16.28	16.76	17.53	18.23	18.23	17.82	17.25	16.94	17.1	16.94
2012	16.01	16.33	16.66	17.28	17.89	18.53	18.95	19.29	18.68	18.18	17.8	17.51	17.76
2013	16.87	17.42	17.91	17.91	18.28	19.06	19.19	19.22	18.76	17.97	17.67	17.62	18.15
2014	17.29	17.59	17.95	18.4	18.77	19.41	19.86	19.89	19.42	19.06	18.91	18.84	18.78
2015	17.96	18.08	18.38	18.59	18.54	18.84	19.16	19.08	18.68	17.84	16.95	16.86	18.25
2016	16.17	16.06	16.14	15.88	15.91	15.57	15.54	15.24	14.74	14.32	14.02	14.19	15.32
2017	13.56	13.62	13.7	13.87	14.08	14.44	14.85	14.79	14.43	13.87	13.2	13.31	13.98
2018	13.02	13.22	13.46	13.62	14.01	14.31	14.51	14.56	14.21	14.07	13.57	13.75	13.86
2019	13.51	13.92	14.13	14.47	14.71	15.17	15.45	15.46	15.12	14.78	14.4	14.58	14.64
2020	14.05	14.57	14.67	13.48	13.71	13.85	14.11	14.41	14.09	13.77	13.42	13.59	13.98
2021	13.34	13.84	13.94	13.71	13.94	14.09	14.21	14.51	14.19	13.88	13.53	13.7	13.91
2022	13.61	14.12	13.8	13.87	14.1	14.24	14.38	14.68	14.36	14.06	13.71	13.88	14.07

Note: April and May 2020 represent the first post-pandemic employment months. Starting June 2020, we present the forecast for the Natural resources and mining sector.

fewer jobs than in 2019. The decrease would represent a 4.4% relative to the previous year. In 2021, we expect the sector to essentially be flat before resuming gaining jobs in 2022. By the end of 22, we expect the sector's employment to be at 96% of its pre-pandemic levels.

Figure 24: Oil prices

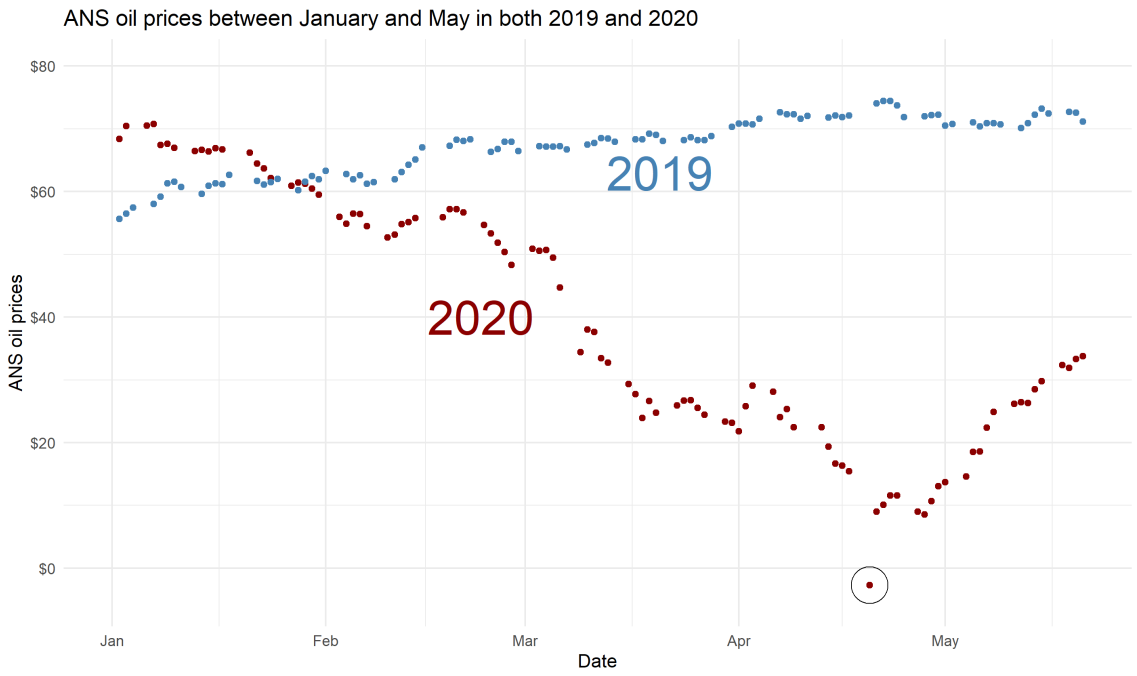
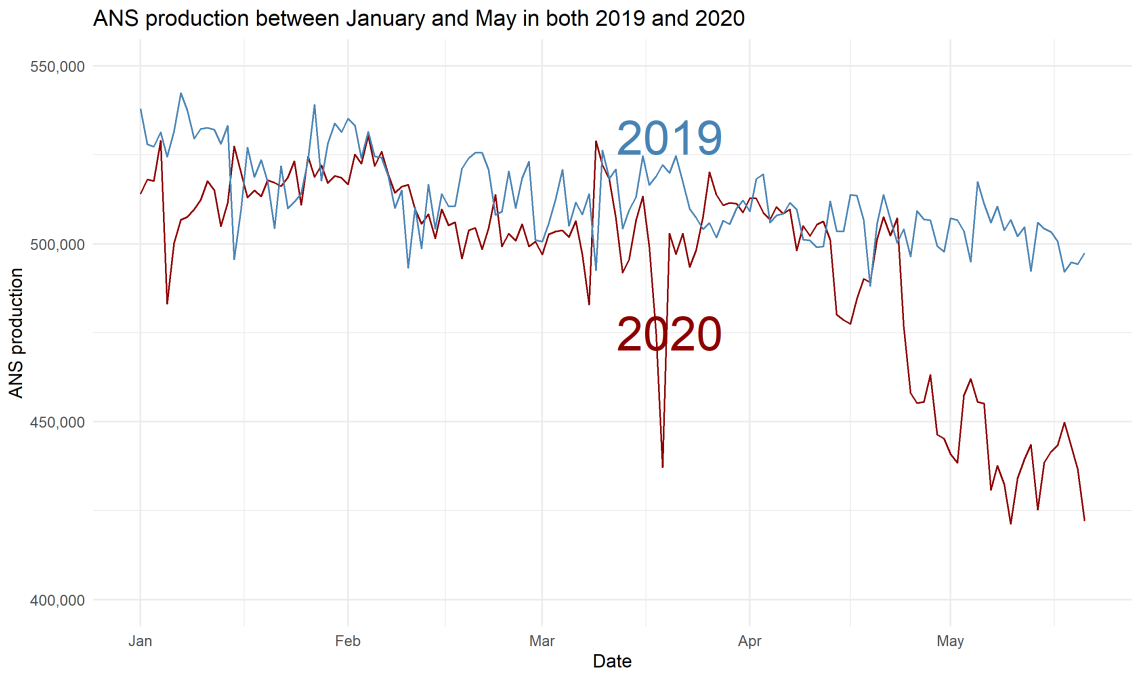


Figure 25: Oil production

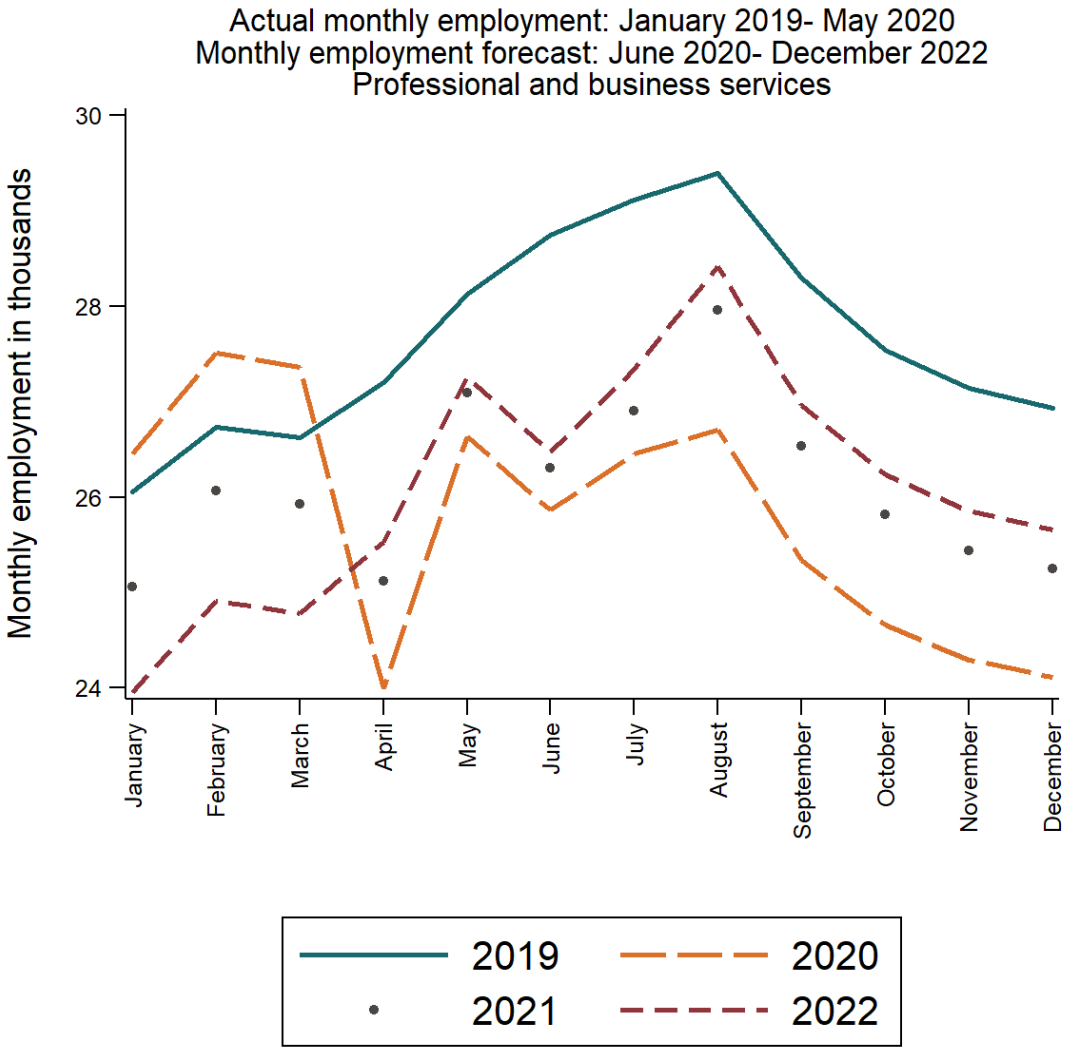


18.1 Professional and Business Services

The Professional and Business super-sector has three components:

The Professional, Scientific, and Technical Services, Management of Companies and Enterprises, and Administrative and Support and Waste Management services. The demand for these services, in Alaska, is heavily tied to the Oil and Gas industry. Therefore, the performance of the sector which has been challenged due to the pandemic will also face a difficult path forward due to pressure on oil prices. During the most recent oil drop driven recession, this sector shrank significantly between 2015 and 2018. The negative outlook for Oil and Gas means that this sector will also have challenges in the upcoming years given the connectdeness to Alaska's leading basic sector. In 2020, we anticipate the economy to end the year with around 1800 fewer jobs than in 2019. The decrease would represent a 6.7% relative to the previous year. In 2021, we expect the sector to resume gaining jobs, albeit at slow pace. By the end of 2022, we expect the sector to be at 93% of the pre-pandemic levels

Figure 26: Professional and business services



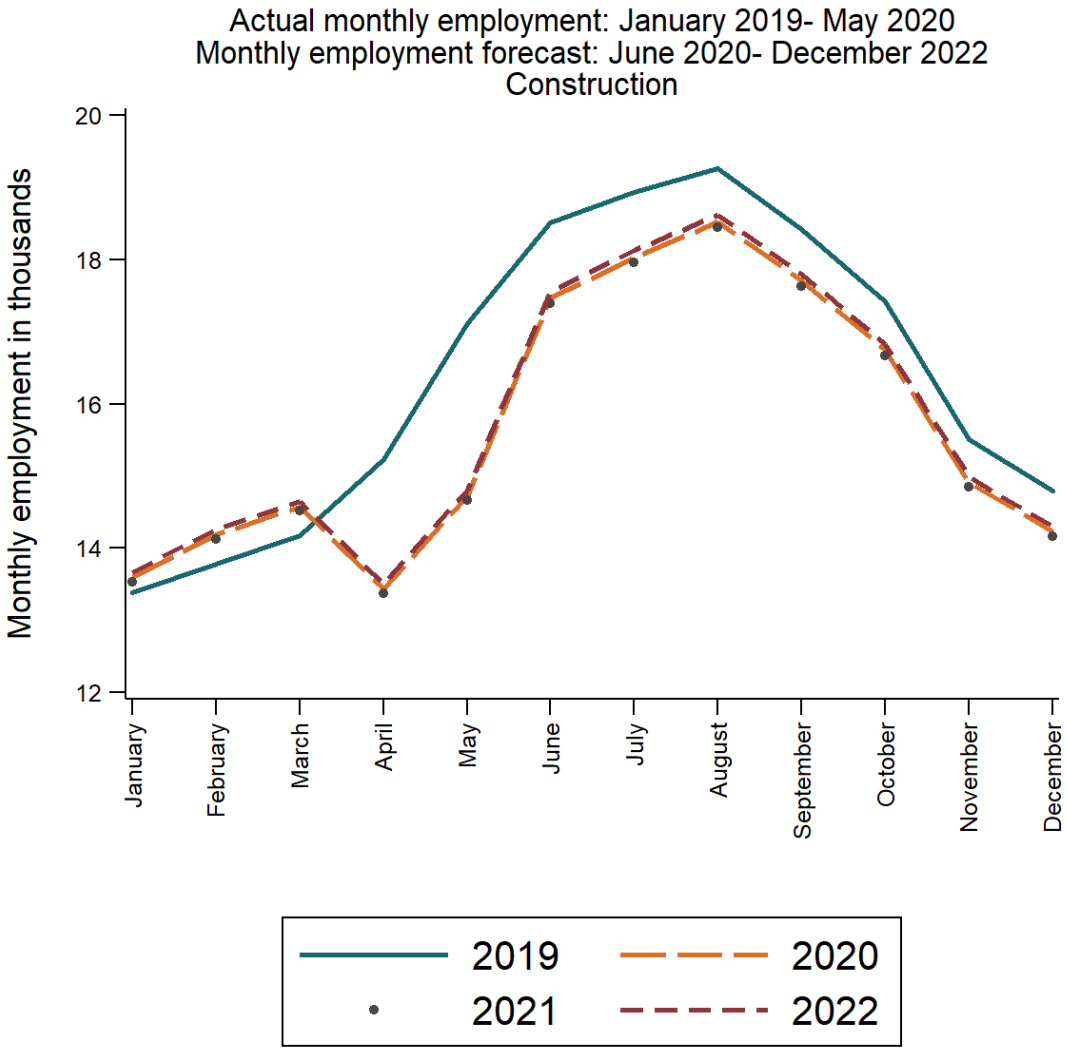
Alaska Professional and business services employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Average Emp
2002	22.78	23.5	23.69	23.77	24.77	25.93	25.77	26.28	25.33	24.59	24.06	24.07	24.54
2003	22.02	22.01	22.28	22.42	23.93	24.66	24.47	24.82	23.71	22.7	22.14	22.33	23.12
2004	21.73	21.93	22.41	22.73	23.41	24.7	24.95	25.11	24.75	23.54	22.92	23	23.43
2005	21.91	22.44	22.46	22.98	24.36	25.68	25.75	26.04	25.15	23.45	23.05	22.96	23.85
2006	22.26	22.9	23.24	23.74	24.93	25.97	25.95	25.87	25.57	24.14	23.86	23.97	24.36
2007	23.28	23.81	24.01	24.4	25.8	26.83	26.53	26.69	26.3	24.89	24.64	24.37	25.13
2008	24.09	24.73	24.78	25.52	26.99	27.85	28.07	27.89	27.26	26.19	25.56	25.67	26.22
2009	25.25	25.56	25.57	25.56	26.86	27.58	27.6	27.45	27.03	25.95	25.31	25.29	26.25
2010	24.73	25.07	25.23	25.37	26.38	27.58	27.66	27.69	27.59	26.33	25.59	25.48	26.23
2011	25.3	25.93	25.98	26.48	27.4	28.53	28.47	28.23	28.24	27.31	26.8	26.87	27.13
2012	26.79	27.38	27.59	27.83	28.89	30.02	30.12	30.12	29.91	28.87	28.04	27.89	28.62
2013	28.5	29.3	29.23	29.71	30.55	31.56	31.48	31.94	30.81	29.54	29.3	29.27	30.1
2014	28.66	28.57	29.21	29.2	30.57	31.07	31.34	31.45	30.92	30.04	29.01	29.18	29.93
2015	28.96	29.17	29.19	29.81	30.81	31.5	31.47	31.28	30.65	29.62	28.86	28.35	29.97
2016	27.59	27.74	27.77	28.64	29.22	29.84	29.62	29.77	29.04	27.85	26.87	27.07	28.42
2017	26.61	27.35	27	27.22	28.46	29.39	29.5	29.43	28.59	27.46	26.91	26.52	27.87
2018	26.18	26.69	26.72	26.29	27.57	28.43	28.53	28.77	28.07	27.25	26.67	26.7	27.32
2019	26.06	26.73	26.62	27.19	28.12	28.75	29.11	29.39	28.3	27.54	27.14	26.93	27.65
2020	26.45	27.51	27.36	23.98	26.63	25.86	26.45	26.7	25.33	24.65	24.29	24.1	25.78
2021	25.06	26.06	25.92	25.12	27.09	26.31	26.9	27.96	26.53	25.81	25.44	25.24	26.12
2022	23.95	24.91	24.78	25.52	27.26	26.47	27.34	28.41	26.96	26.23	25.85	25.65	26.11

18.2 Construction

Summer employment in the sector is about 50% higher than the winter low-point. According to recent report by the McDowel Group [3], the biggest funding source of construction spending in Alaska comes from private sector investment, most notably spending by the oil and gas sector. The challenges surrounding the Oil $ Gas sector will ripple into Construction as we saw during the 2015-2018 recession. While private spending is important, federal, state, and local government spending on a wide range of public infrastructure and facilities projects is also crucial. State capital budget appropriations for construction (including federal funds) have been at historically low levels in recent years, and well below peak years of over $3 billion. Fiscal year 2018 saw the smallest capital budget for construction at $1.1 billion, including $190 million in state funding support. In 2020, they forecast construction spending of 6.6 billion dollars with 2.9 coming from the petroleum industry. This forecast was created before the pandemic and does not take into account any changes in activity. In 2020, we anticipate the sector to end the year with around 1,870 fewer jobs than in 2019. The decrease would represent a 6.7% relative to the previous year. In 2021, we expect the sector to resume gaining jobs. By the end of 2022, we expect the sector's employment to be at 94% of the pre-pandemic levels.

Figure 27: Construction



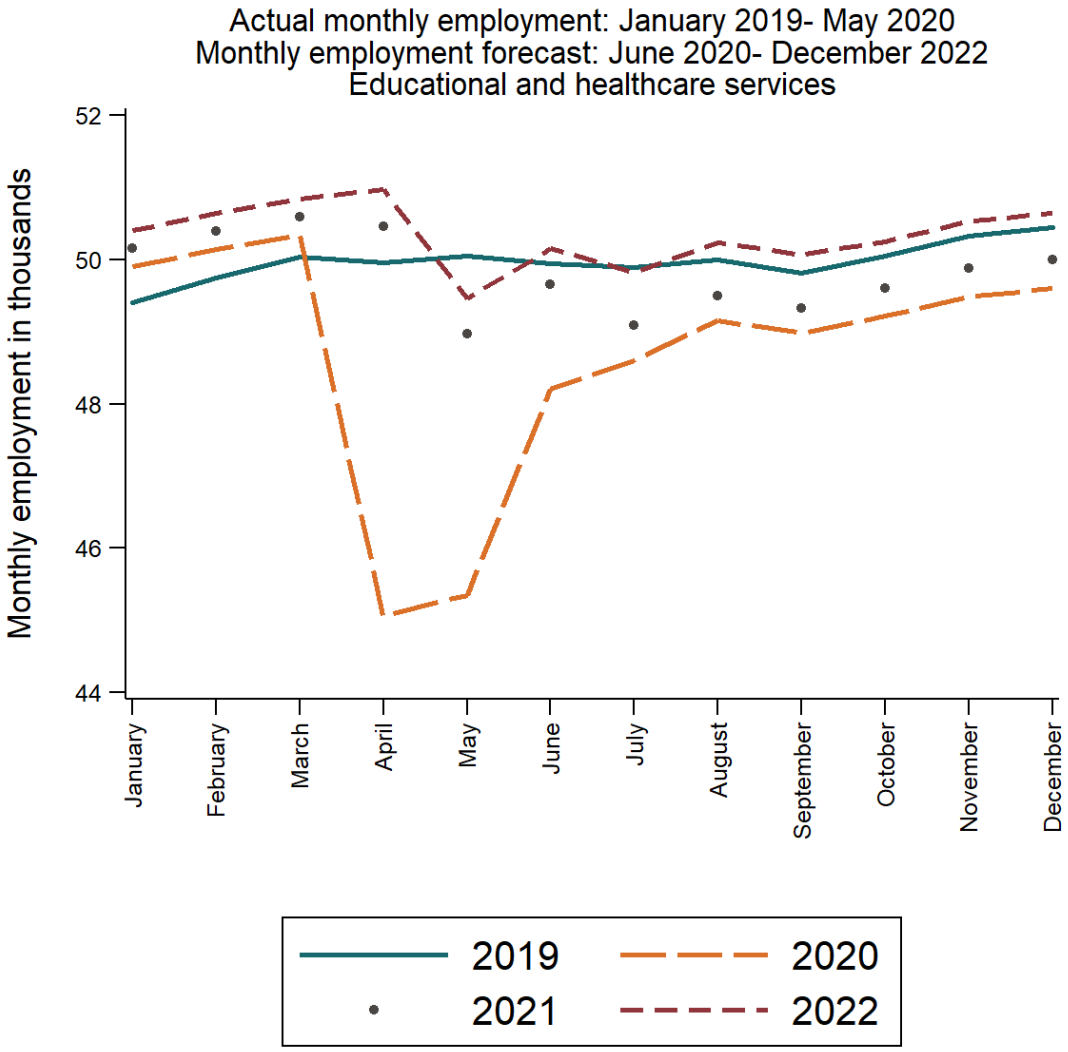
Alaska Construction employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	12.16	12.4	12.83	13.39	15.9	18.17	19.13	19.77	19.08	17.95	15.75	14.52	15.92
2003	12.53	12.7	13.06	14.56	17.34	19.23	20.35	20.97	20.4	19.12	16.66	15.34	16.86
2004	13.74	13.81	14.11	15.31	17.66	20.05	21.32	21.65	20.97	19.57	17.46	16.13	17.65
2005	14.57	14.66	15.18	16.77	18.8	21.06	22.24	22.69	21.65	20.12	17.67	16.27	18.47
2006	14.45	14.52	15.01	16.2	18.49	20.75	21.37	21.43	20.89	19.7	17.26	16.01	18.01
2007	14.12	14.45	14.47	15.7	17.84	20.09	20.66	21.08	20.16	19	16.69	15.49	17.48
2008	13.72	14.13	14.5	15.68	17.8	19.9	20.64	21.15	20.06	18.82	15.85	14.83	17.26
2009	12.9	13.26	13.58	14.38	16.73	18.67	19.55	19.83	18.73	17.57	15.35	14.41	16.25
2010	12.8	12.74	12.95	14.14	16.4	18.61	19.6	19.85	19.03	17.84	15.13	14	16.09
2011	12.3	12.53	12.8	14.03	16.02	18.2	18.89	19.22	18.63	17.61	15.11	14	15.78
2012	13.09	13.21	13.58	14.49	16.56	18.92	19.74	20.16	19.11	18.19	15.36	14.29	16.39
2013	12.77	13.24	13.8	14.56	16.29	18.85	19.66	20.63	19.55	18.09	15.9	15.09	16.54
2014	14	14.31	14.84	15.54	17.53	19.43	20.08	20.7	19.65	17.86	15.78	15.12	17.07
2015	14.88	15.3	15.85	16.84	18.54	20.2	20.95	20.82	19.51	17.96	15.95	14.95	17.65
2016	13.89	14.11	14.23	15.43	17.24	18.55	19.45	19.11	18	16.7	14.53	13.44	16.22
2017	12.2	12.81	13.04	13.92	15.48	17.5	17.95	18.01	17.31	16.28	14.15	13.24	15.16
2018	12.54	12.96	13.42	14.16	15.97	17.88	18.36	18.69	18.11	17.45	15.48	14.77	15.82
2019	13.39	13.78	14.17	15.22	17.11	18.51	18.93	19.26	18.42	17.41	15.51	14.79	16.37
2020	13.59	14.18	14.57	13.43	14.72	17.47	18.03	18.52	17.7	16.74	14.91	14.22	15.67
2021	13.53	14.12	14.51	13.37	14.66	17.39	17.95	18.44	17.63	16.67	14.84	14.16	15.61
2022	13.66	14.25	14.65	13.5	14.79	17.56	18.13	18.62	17.8	16.83	14.99	14.3	15.75

19 Education and Healthcare services

The Healthcare sector has been one of the few sectors to experience continual growth even in the midst of Alaska's most recent recession. The growth is largely due to the aging of the Alaska population. According to the Alaska Department of Labor, Alaska's 65-plus population will increase to 125,423 by 2026, as the large baby boomer generation continues to move into that age group. As a result of the pandemic and the suspension of non-essential visits, healthcare employment declined precipitously but it is expected to rebound much faster than the rest of the Alaska economy as many people who delayed procedures are now returning to healthcare facilities as evidenced by the much higher foot traffic to physician offices. In 2020, we anticipate the economy to end the year with around 1,300 fewer jobs than in 2019. This would represent a 2.6% decrease relative to the previous year. In 2021, we expect the sector to resume growth at a rate 2.23%. By the end of 2022, we expect that the Education and Healthcare sector to be at about 100.7% of the pre-pandemic levels.

Figure 28: Education and healthcare services



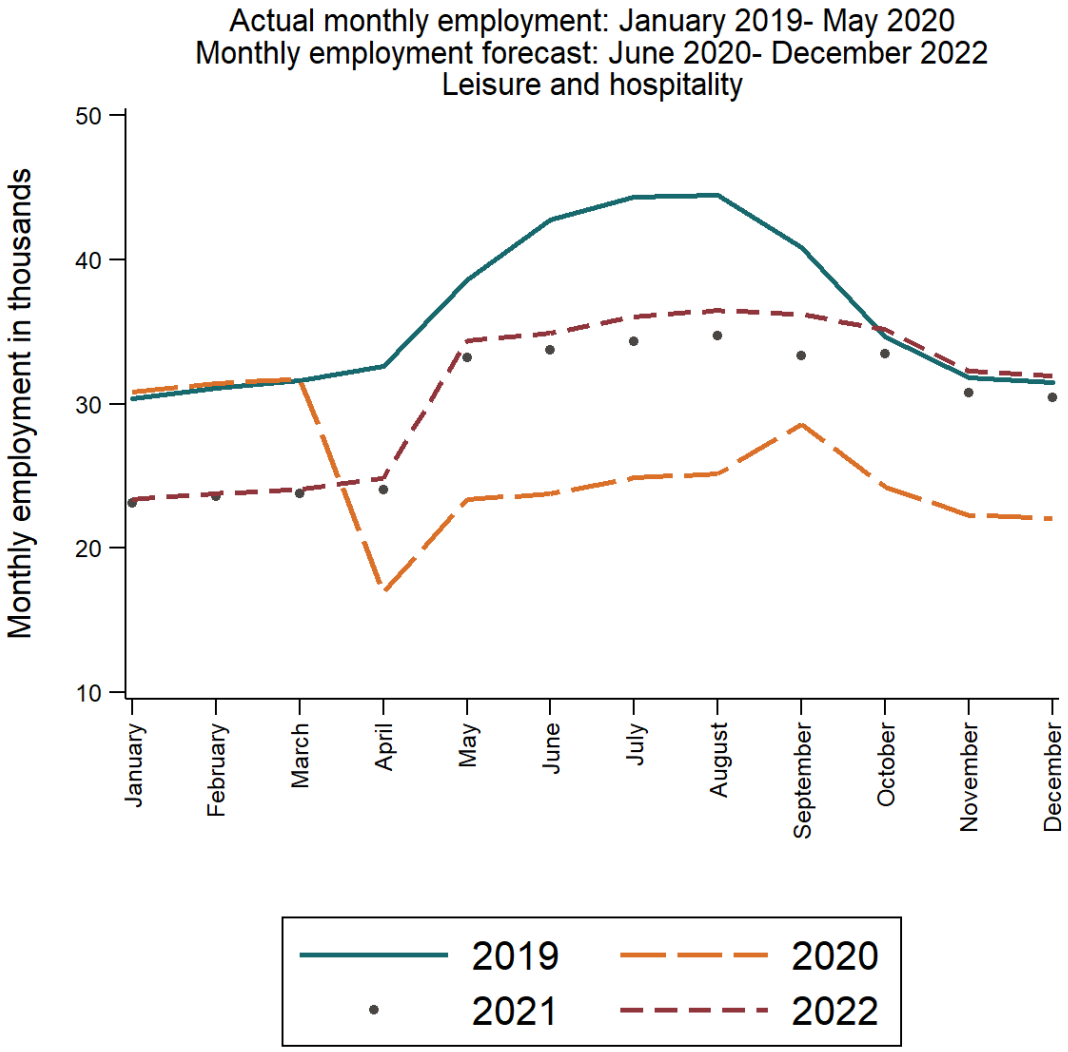
Alaska Education and Healthcare services employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	28.15	28.6	28.88	29.24	29.55	29.73	29.63	29.77	29.56	29.81	30.11	30.35	29.45
2003	31.37	32.19	32.43	32.72	32.96	32.97	33.01	33.08	32.91	33.06	33.13	33.54	32.78
2004	33.71	34.1	34.51	34.84	34.98	34.88	34.63	34.4	34.66	34.88	35.1	35.46	34.68
2005	35.17	35.47	35.91	35.81	35.93	36.13	35.68	35.66	35.54	35.61	35.65	35.82	35.7
2006	36.39	36.87	37.03	37.13	37.39	37.56	37.21	37.22	37.09	36.73	36.91	37.04	37.05
2007	36.6	37.07	37.21	37.31	37.26	37.08	36.7	36.89	36.49	36.68	36.76	36.93	36.91
2008	36.8	37.32	37.57	37.5	37.68	37.52	37.73	37.74	37.5	37.65	37.82	38.14	37.58
2009	37.9	38.34	38.5	38.78	38.98	39.07	39.23	39.39	39.37	39.86	39.88	40.25	39.13
2010	40.85	41.28	41.38	41.57	41.69	41.71	41.78	41.68	41.85	42.27	42.34	42.6	41.75
2011	42.81	43.19	43.25	43.45	43.57	43.51	43.52	43.7	43.71	43.72	43.85	44.24	43.54
2012	44.44	45.08	45.07	45.22	45.47	45.54	45.26	45.39	45.12	45.55	45.72	45.87	45.31
2013	45.55	46.05	46.2	46.45	46.5	46.18	46.14	46.12	46.01	46.21	46.27	46.21	46.16
2014	45.6	45.9	45.94	46.12	45.97	45.82	45.74	45.71	45.54	45.75	45.62	45.71	45.78
2015	45.91	46.17	46.24	46.39	46.4	46.36	46.45	46.31	46.04	46.41	46.46	46.81	46.33
2016	46.72	47.28	47.53	47.81	47.78	47.38	47.87	47.87	47.81	47.84	48	48.34	47.68
2017	48.07	48.58	48.77	48.91	49.09	49.08	48.89	48.95	48.62	48.89	49.03	49.23	48.84
2018	49.16	49.5	49.72	49.58	49.62	49.62	49.38	49.36	49.2	49.61	49.94	50.01	49.56
2019	49.4	49.74	50.04	49.95	50.05	49.95	49.89	49.99	49.82	50.05	50.33	50.45	49.97
2020	49.9	50.14	50.33	45.05	45.34	48.2	48.6	49.15	48.98	49.21	49.48	49.6	48.67
2021	50.15	50.39	50.58	50.46	48.97	49.65	49.09	49.5	49.32	49.61	49.88	49.99	49.8
2022	50.4	50.64	50.84	50.97	49.46	50.15	49.83	50.24	50.06	50.25	50.53	50.64	50.33

20 Leisure and Hospitality

The leisure and hospitality sector is made up of arts, entertainment, and recreation cluster as well as the larger accommodation and food and beverage industries. It relies on both spending by Alaskans as well as tourism. The pandemic related closures as well as the severe decline in travel mean that the sector will be much smaller than previous years and will be challenged going forward. In 2020, we anticipate the economy to end the year with around 10,780 fewer jobs than in 2019. This would represent a 29% decrease relative to the previous year. In 2021, we expect the sector to resume growth as travel patterns begin normalizing. By the end of 2022, we expect that the Leisure and Hospitality sector to be at about 85% of the pre-pandemic levels. In addition to the sector's importance for jobs, it plays an important role as a tax base for many communities across the state which mean local government revenues will be severely challenged as long as travel levels are depressed.

Figure 29: Leisure and Hospitality employment



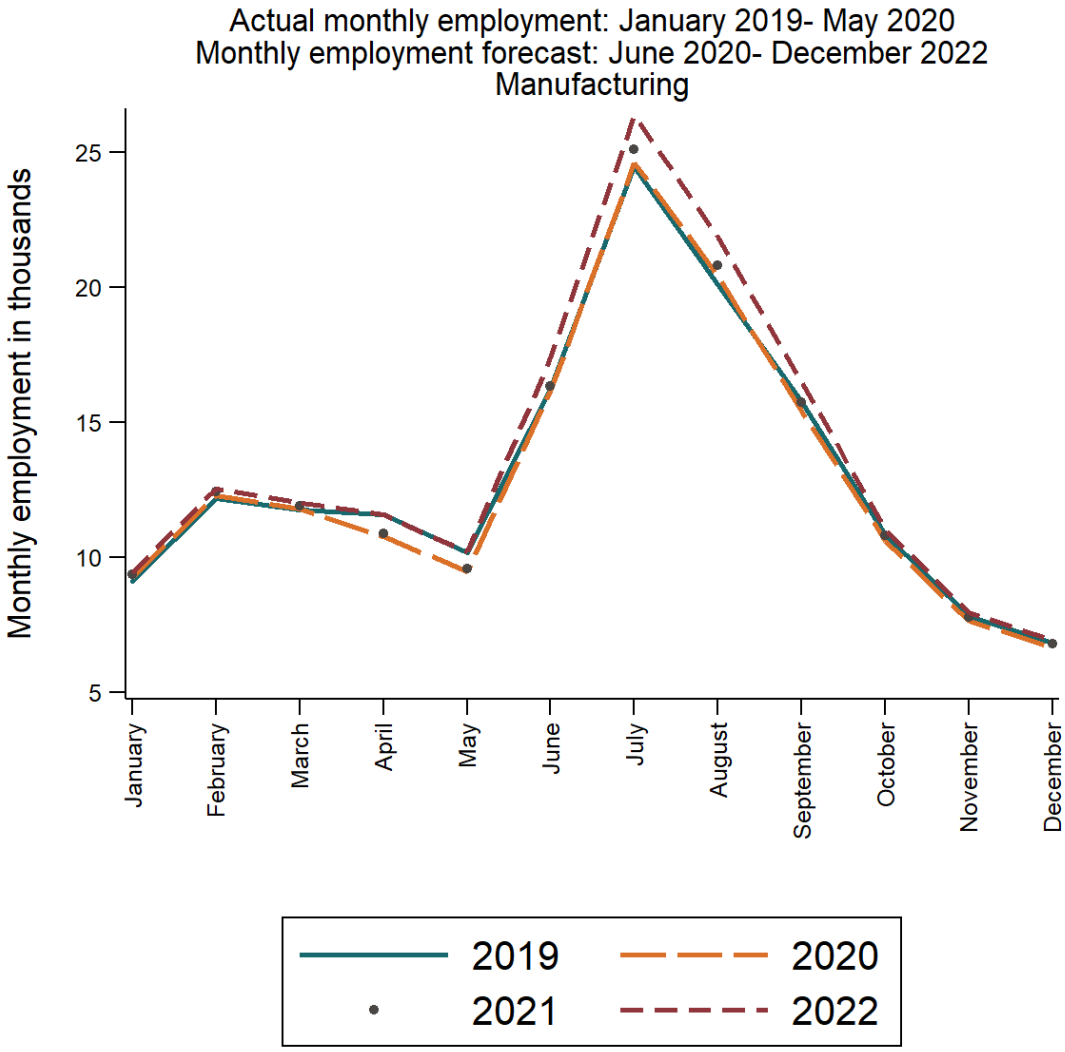
Alaska Leisure and Hospitality employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	23.98	24.82	25.03	26.69	30.02	33.75	35.08	34.82	32.4	27.76	26.32	26.23	28.91
2003	25.55	25.57	25.91	27.05	30.73	34.09	35.62	35.83	33.43	28.09	26.7	26.58	29.6
2004	24.85	25.26	25.88	27.13	30.61	35	37.03	37.33	34.64	29.23	27.11	27.4	30.12
2005	25.9	26.23	26.87	28.32	32.37	36.68	38.55	38.25	35.14	28.79	27.43	27.41	30.99
2006	25.89	26.56	27.18	28.38	32.72	37.79	38.75	38.87	35.64	28.95	28	28.11	31.4
2007	26.96	27.55	28.05	29.28	33.7	38.91	39.73	39.49	35.86	29.08	28.25	28.06	32.08
2008	27	27.48	27.8	28.94	34.73	38.86	40.2	39.8	36.08	29.14	28.17	27.94	32.18
2009	26.56	27.16	27.56	28.15	33.08	36.45	37.71	37.72	35.13	28.9	27.66	27.55	31.13
2010	26.34	26.8	27.26	28.52	32.87	36.94	38.27	38.33	35.38	28.96	28.35	28.66	31.39
2011	27.48	27.97	28.65	29.68	33.85	38.24	39.75	39.59	36.5	30.03	29	28.76	32.46
2012	27.89	28.37	29.22	30.38	34.64	39.32	40.61	40.42	37.12	32.07	29.6	29.43	33.26
2013	28.43	29.09	29.73	30.72	35.52	39.79	41.07	40.97	37.38	32.27	29.69	29.33	33.67
2014	28.7	29.35	30.29	31.07	36.76	40.27	41.34	41.31	37.95	32.34	30.19	30.26	34.15
2015	29.61	30.16	30.78	31.7	37.59	41.18	42.67	42.13	39.19	33.08	30.53	30.58	34.93
2016	29.92	30.3	30.81	32.12	37.81	41.95	43.08	43.14	39.54	33.07	30.66	30.82	35.27
2017	29.85	30.22	30.89	31.92	38.07	42.41	43.45	43.13	39.87	33.56	30.38	30.64	35.37
2018	29.75	30.46	31.06	32	37.93	42.21	43.81	43.85	39.78	34.09	31	30.92	35.57
2019	30.34	31.11	31.64	32.59	38.6	42.77	44.38	44.5	40.83	34.63	31.79	31.49	36.22
2020	30.86	31.42	31.73	16.91	23.39	23.75	24.87	25.17	28.61	24.26	22.27	22.06	25.44
2021	23.14	23.56	23.8	24.02	33.21	33.72	34.33	34.74	33.31	33.48	30.74	30.45	29.88
2022	23.37	23.8	24.04	24.86	34.38	34.9	36.04	36.48	36.2	35.16	32.28	31.97	31.12

21 Manufacturing

Seafood processing represents 70% of all manufacturing jobs in the state of Alaska. The sector contributes to the tax base of many fishing communities and may be challenged going forward if a demand from international markets remains weak. While the price outlook is sensitive to COVID related disruptions, we do not expect sharp declines in employment. It is also important to note that while the processing industry is an important base to many communities, almost 3/4 of the workforce in the sector is non-resident which means that the linkages between seafood specific employment and the economy are weak. In 2020, we anticipate the sector to end the year with around 140 fewer jobs than in 2019. The decrease would represent a 1.07% relative to the previous year. In 2021, we expect the economy to slowly start regaining the jobs lost the previous year and grow at a rate of 1.5%. In 2022, we anticipate a continuing climb for the economy as it is expected to grow at 3.9% percent. By the end of 2022, the Alaska economy should be at about 104% of the pre-pandemic levels. The seafood manufacturing is a part of the overall Seafood sector which is under pressure due to potentially challenged world demand.

Figure 30: Manufacturing employment



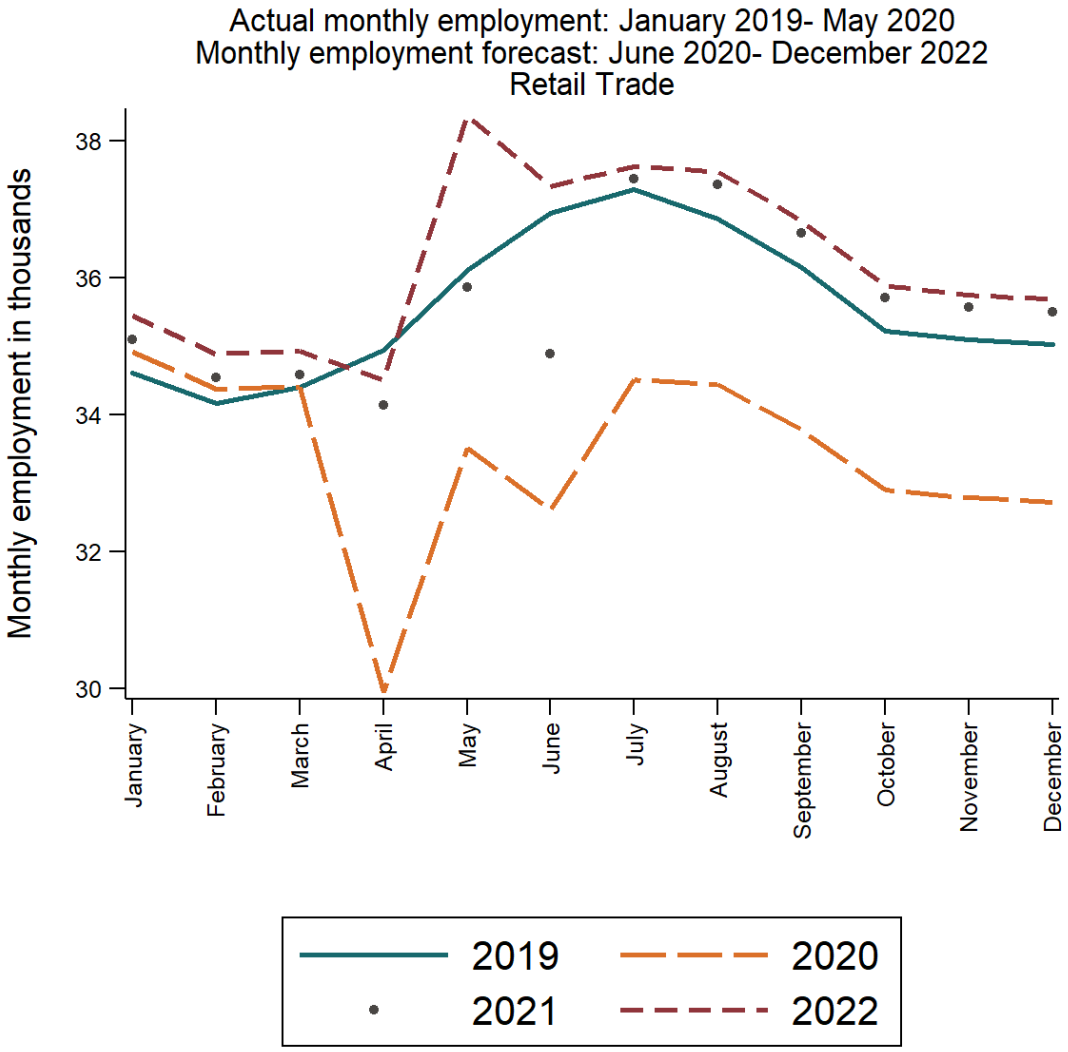
Alaska Manufacturing employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	8.048	11.76	11.56	9.986	9.477	11.6	18.05	16.48	13.29	10.16	7.352	6.028	11.15
2003	8.632	11.77	11.86	8.993	9.325	13.53	19.72	17.75	13.54	10.49	7.352	5.726	11.55
2004	10.62	11.5	11.6	10.17	10.29	14.35	21.18	18.33	14.6	10.93	7.761	5.971	12.27
2005	10.84	11.67	11.8	10.2	10.32	14.26	21.32	19.51	15.04	10.8	8.757	6.673	12.6
2006	10.81	12.12	12.51	11.31	10.45	16.66	22.29	20.2	15.2	10.98	9.024	6.864	13.2
2007	10.79	11.69	11.83	10.97	10.47	15.72	22.15	20.53	15.68	11.35	9.306	7.186	13.14
2008	10.66	12.11	12.04	10.64	10.92	15.85	22.11	19.94	15.28	10.53	8.726	6.966	12.98
2009	10.47	11.77	11.93	11.27	10.37	15.77	23.36	20.62	14.41	9.825	8.234	6.33	12.86
2010	10.43	11.6	11.99	10.95	10.28	15.38	22.73	19.95	14.73	9.789	8.47	6.492	12.73
2011	10.51	12.29	12.79	11.51	10.82	16.75	24.09	21.97	16.94	11.08	8.919	6.48	13.68
2012	10.79	12.9	13.43	12.49	11.97	17.52	23.44	20.79	15.25	11.4	9.32	7.173	13.87
2013	11.11	12.9	13.13	12.87	12.09	17.11	24.37	21.46	16.94	11.77	9.346	7.875	14.25
2014	12.12	13.41	13.44	13.9	12.11	17.93	24.87	21.04	15.36	11.29	9.341	7.805	14.38
2015	11.59	12.97	13.16	12.45	11.56	17.14	24.75	21.37	15.83	11.28	8.677	7.563	14.03
2016	11.48	13.45	13.67	12.39	10.68	16.29	24.22	20.38	14.08	10.81	8.281	7.114	13.57
2017	9.648	12.74	12.88	11.55	10.49	16.52	23.94	20.8	14.17	10.85	8.02	6.955	13.21
2018	9.088	12.15	11.81	11.45	10.22	16.06	23.59	19.27	13.37	10.28	7.655	6.567	12.62
2019	9.106	12.16	11.75	11.56	10.17	16.21	24.46	20.11	15.77	10.84	7.815	6.82	13.06
2020	9.26	12.28	11.79	10.76	9.474	16.15	24.6	20.4	15.41	10.59	7.639	6.66	12.92
2021	9.353	12.41	11.9	10.87	9.569	16.31	25.09	20.81	15.72	10.81	7.792	6.8	13.12
2022	9.446	12.53	12.02	11.57	10.19	17.37	26.34	21.85	16.51	11.02	7.948	6.936	13.64

22 Retail

Alaska's retail industry weathered more than a -two-year recession as a result of the oil price decline in 2015. In addition to this temporary shock, the sector's growth has been challenged by the growing influence of large online retailers which has caused the closures of many large recent losses which include Sam's Club warehouses, Nordstrom, and a few others. In 2020, we anticipate the sector to end the year with around 2,160 fewer jobs than in 2019. The decrease would represent a 6.07% relative to the previous year. In 2021, we expect the retail sector to regain jobs rather quickly especially if Alaskans re-allocate some of the spending they typically do while travelling towards in-state purchases. In 2022, we anticipate a continuing climb for the economy as it is expected to grow at 1.7% percent. By the end of 2022, the Alaska economy should be at about 101% of the pre-pandemic levels. It is important to note there are significant downside risks which could negatively influence the employment outlook.

Figure 31: Retail employment



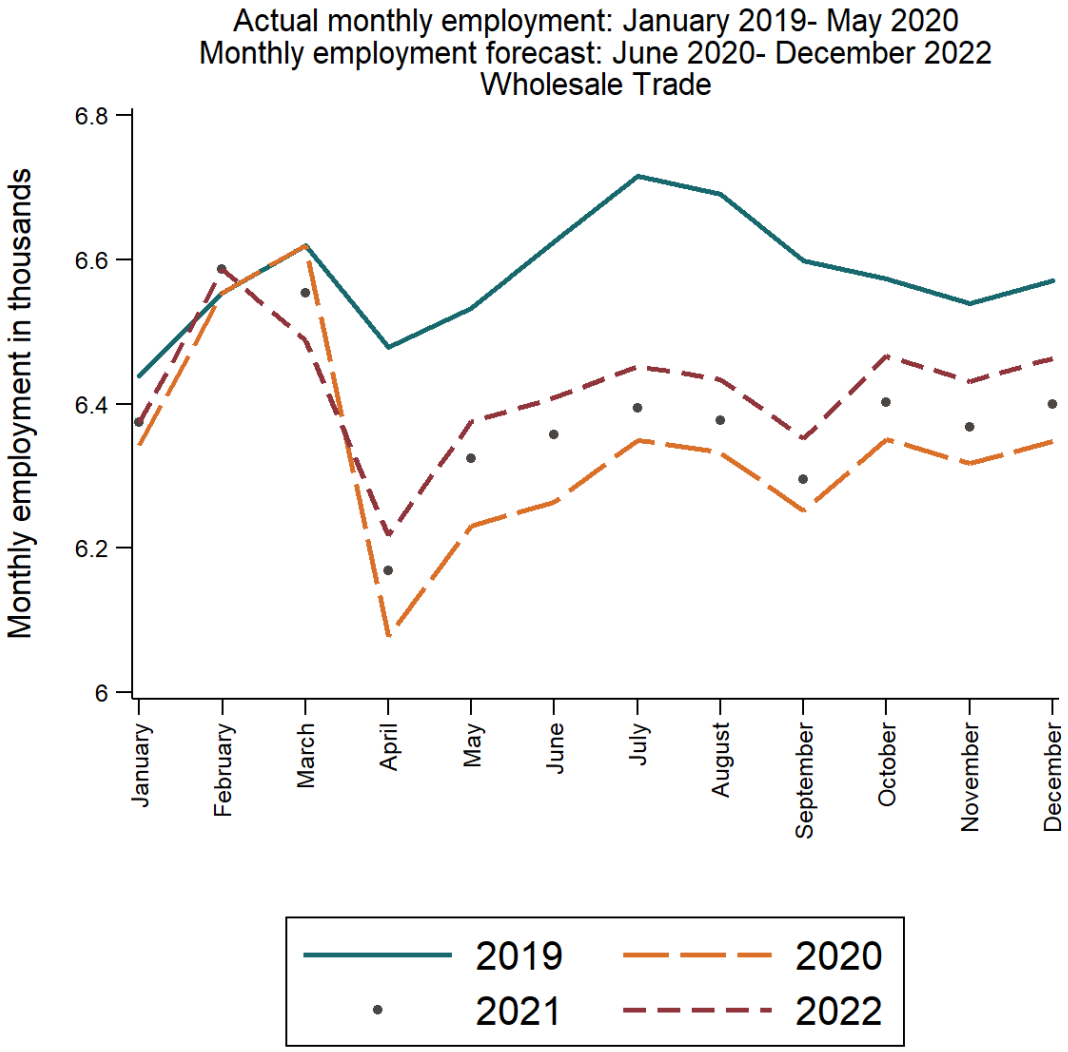
Alaska Retail trade employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	32.12	31.99	32.28	32.56	34.18	35.41	35.78	35.56	34.87	34.23	33.89	34.06	33.91
2003	32.36	32.15	32.27	32.87	34.36	35.65	36.01	35.81	35.19	34.28	34.1	34.52	34.13
2004	32.36	32.1	32.66	33.74	35.3	36.84	37.19	37.1	36.11	34.98	35.12	35.24	34.89
2005	33.6	33.49	33.66	34.73	36.18	37.61	37.89	37.81	36.94	35.93	35.73	35.9	35.79
2006	34.37	33.6	34.07	34.87	36.47	37.79	37.73	37.49	36.49	35.33	35.45	35.7	35.78
2007	34.32	33.88	34.23	34.86	36.51	37.84	38.21	37.87	36.76	35.73	35.78	36.16	36.01
2008	35.07	34.37	34.65	35.36	36.76	37.93	38.06	37.64	36.86	36.02	35.92	36.04	36.22
2009	34.26	33.62	33.81	34.7	36.06	37.05	37.33	37.25	36.58	35.41	35.56	35.52	35.59
2010	34.06	33.7	33.73	34.65	35.88	37.14	37.28	36.98	35.95	35.1	35.34	35.44	35.44
2011	34	33.62	33.83	34.54	36.02	37.22	37.53	37.5	36.72	35.76	35.88	35.94	35.71
2012	34.47	33.95	33.99	34.67	36.2	37.27	37.44	37.31	36.55	35.78	35.75	35.74	35.76
2013	34.25	33.68	33.82	34.56	36.01	37.25	37.5	37.85	37.11	36	36.01	36.11	35.85
2014	34.75	34.62	34.61	35.56	37.19	38.21	38.68	38.7	37.69	36.78	36.9	36.93	36.72
2015	35.54	35.29	35.47	36.21	37.74	38.84	39.31	39.33	38.51	37.53	37.55	37.53	37.4
2016	35.75	35.49	35.54	36.39	37.68	38.51	38.76	38.42	37.63	36.88	36.77	36.62	37.04
2017	35.39	35.02	34.95	35.65	36.81	37.87	38.14	37.84	36.87	35.98	36.04	35.81	36.36
2018	34.79	34.38	34.37	34.78	36.22	37.18	37.39	37.23	36.42	35.57	35.81	35.74	35.82
2019	34.6	34.16	34.4	34.94	36.11	36.94	37.28	36.86	36.15	35.22	35.09	35.03	35.56
2020	34.91	34.37	34.4	29.94	33.51	32.6	34.51	34.43	33.77	32.9	32.78	32.72	33.4
2021	35.09	34.54	34.58	34.13	35.85	34.89	37.44	37.36	36.64	35.7	35.57	35.5	35.61
2022	35.44	34.89	34.92	34.51	38.36	37.33	37.63	37.55	36.82	35.88	35.74	35.68	36.23

23 Wholesale trade

Wholesale trade is a small and relatively invisible industry as it does not have regular contact with the public. The sector has historically been fairly stable even during times of economic turmoil. In 2020, we anticipate the sector to end the year with almost 240 fewer jobs than in 2019. The decrease would represent a 3.6% relative to the previous year. In 2021, we expect the sector to slowly start regaining the jobs lost the previous year and grow at a rate of 0.74%. In 2022, we anticipate a continuing climb for the economy as it is expected to grow at 0.58% percent. By the end of 2022, the sector should be at about 97% of the pre-pandemic levels. It is important to note there are significant downside risks which could negatively influence the employment outlook.

Figure 32:Wholesale trade



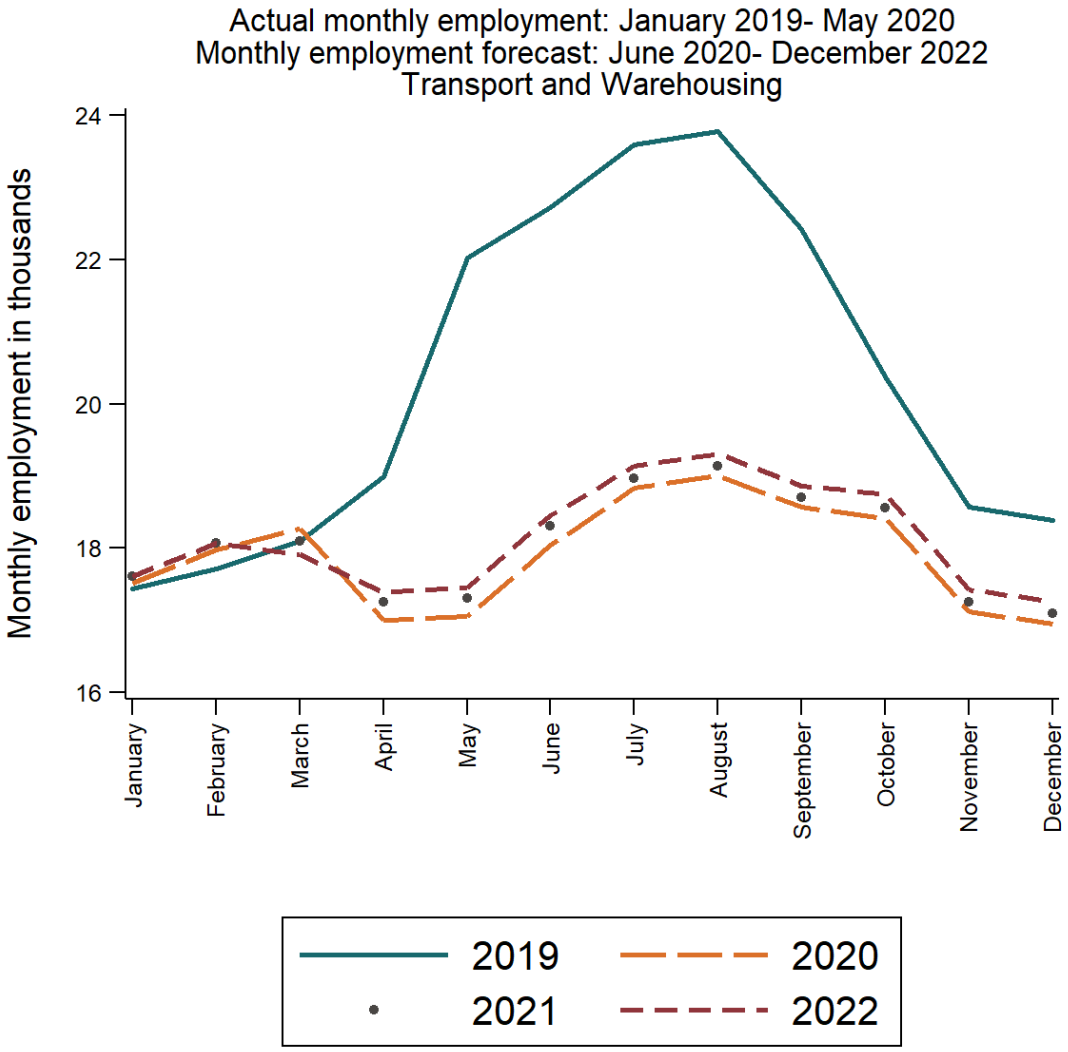
Alaska Wholesale trade employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	5.678	5.718	5.753	6.057	6.251	6.516	6.994	6.949	6.429	6.064	5.968	5.959	6.194
2003	5.929	5.93	5.909	5.915	6.102	6.315	6.434	6.493	6.321	6.047	5.927	5.914	6.103
2004	5.985	6.078	6.16	6.209	6.357	6.596	6.749	6.743	6.518	6.29	6.144	6.204	6.336
2005	6.022	6.079	6.122	6.211	6.436	6.595	6.933	6.867	6.596	6.396	6.34	6.372	6.414
2006	6.243	6.218	6.316	6.368	6.618	6.833	7.056	7.023	6.794	6.509	6.37	6.424	6.564
2007	6.333	6.371	6.464	6.492	6.63	6.88	6.961	7.01	6.713	6.514	6.405	6.413	6.598
2008	6.352	6.377	6.38	6.463	6.622	6.83	6.994	6.95	6.61	6.352	6.257	6.261	6.537
2009	6.224	6.179	6.217	6.269	6.439	6.597	6.686	6.652	6.41	6.063	5.984	6.031	6.312
2010	5.974	5.967	6.019	6.135	6.285	6.475	6.764	6.75	6.421	6.227	6.123	6.162	6.275
2011	6.008	6.077	6.082	6.126	6.258	6.476	6.772	6.725	6.435	6.354	6.167	6.137	6.301
2012	6.017	5.998	6.03	6.141	6.269	6.403	6.528	6.514	6.414	6.258	6.242	6.252	6.255
2013	6.409	6.4	6.469	6.528	6.688	6.769	6.769	6.813	6.665	6.614	6.572	6.579	6.606
2014	6.365	6.397	6.4	6.429	6.563	6.673	6.699	6.642	6.606	6.385	6.37	6.411	6.494
2015	6.401	6.435	6.469	6.524	6.575	6.697	6.731	6.684	6.566	6.494	6.438	6.425	6.536
2016	6.428	6.409	6.376	6.409	6.475	6.534	6.567	6.578	6.432	6.313	6.291	6.262	6.422
2017	6.267	6.272	6.276	6.28	6.438	6.483	6.526	6.499	6.389	6.344	6.311	6.332	6.368
2018	6.36	6.469	6.456	6.377	6.478	6.587	6.588	6.626	6.522	6.381	6.331	6.333	6.459
2019	6.439	6.554	6.62	6.479	6.533	6.625	6.716	6.691	6.599	6.574	6.539	6.571	6.578
2020	6.342	6.554	6.62	6.077	6.231	6.263	6.35	6.332	6.251	6.351	6.317	6.348	6.336
2021	6.374	6.586	6.553	6.168	6.324	6.357	6.394	6.376	6.295	6.402	6.368	6.399	6.383
2022	6.374	6.586	6.488	6.217	6.375	6.408	6.452	6.434	6.352	6.466	6.431	6.463	6.42

24 Transportation and Warehousing

The transportation sector is also heavily exposed to the pandemic as travel levels have plummeted which means that the employment outlook will be challenging. Alaska has already experienced a high profile bankruptcy when Ravn Air -which serves more than 100 communities and had over 1,300 employees- announced that the US Bankruptcy Court had approved the airline's liquidation of assets. The regional Alaskan carrier filed for Chapter 11 protection on April 5th, 2020, following a 90% drop in bookings and revenue due to the arrival of COVID-19. This bankruptcy presents significant challenges for Alaska as the airline provided critical for many remote communities in Alaska. In 2020, we anticipate the sector to end the year with almost 2450 fewer jobs than in 2019. The decrease would represent a 12.04% relative to the previous year. In 2021, we expect the economy to slowly start regaining the jobs lost the previous year and grow at a rate of 0.73%. In 2022, we anticipate a continuing climb for the economy as it is expected to grow at 0.61% percent. By the end of 2022, the sector should be at about 89% of the pre-pandemic levels. Similar to the Leisure and Hospitality sector, there is considerable downside risks which could negatively influence the employment outlook.

Figure 33:Transportation and warehousing



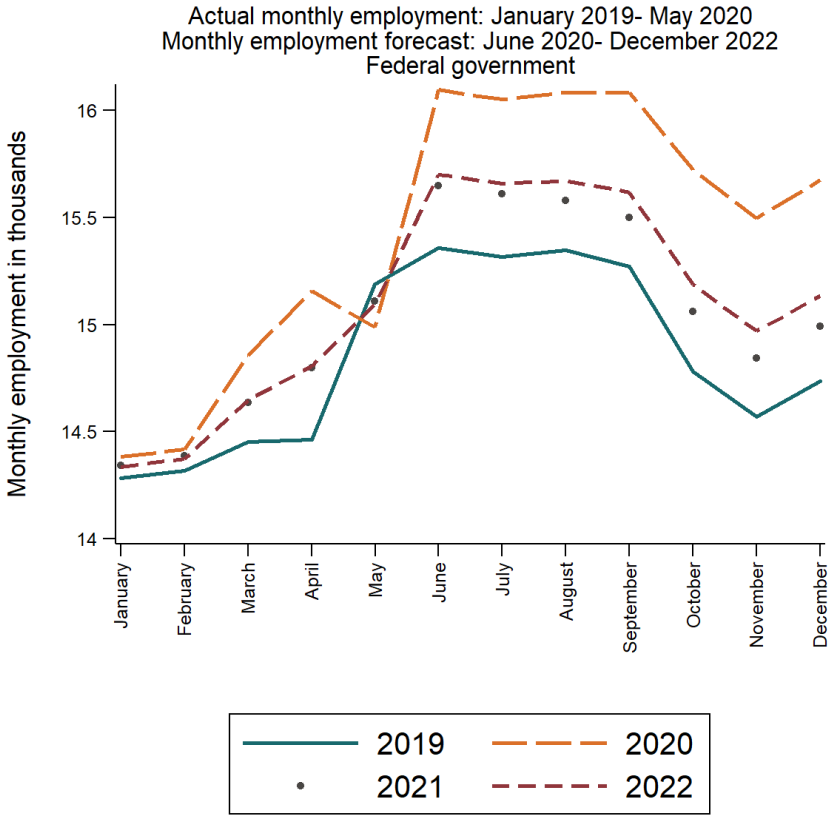
Alaska transportation and warehousing employment 2002-2019

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	17.09	17.46	17.91	18.25	20.21	21.2	21.75	22.03	20.87	18.87	17.41	17.15	19.18
2003	17.18	17.16	17.48	18.05	20.04	20.58	21.11	21.5	20.57	17.92	17.6	17.65	18.9
2004	17.12	17.2	17.47	18.12	20.37	20.84	21.65	21.6	21.04	18.58	17.49	17.29	19.06
2005	17.02	17.12	17.37	18.18	20.43	21.07	22.01	22.24	21.17	18.88	17.98	17.51	19.25
2006	17.34	17.53	17.99	18.64	20.88	22.13	22.48	22.82	21.52	18.62	18.42	18.22	19.72
2007	17.58	18.06	18.09	18.72	21.04	22.2	22.39	22.73	21.83	19.01	18.15	18.11	19.83
2008	17.87	18.3	18.69	19.09	21.83	22.58	22.89	23.17	21.88	18.97	18.36	18.44	20.17
2009	17.91	18.02	18.16	18.6	20.48	21.27	21.72	22.19	21.05	18.29	17.79	17.71	19.43
2010	16.99	17.01	17.27	17.82	19.92	21.08	21.36	21.8	20.68	18.17	17.51	17.56	18.93
2011	16.95	17.3	17.78	18.23	20.6	21.54	21.84	22.25	21.27	18.17	17.68	17.57	19.26
2012	17.33	17.65	17.86	18.53	20.84	21.87	22.41	22.65	21.74	19.72	17.88	17.93	19.7
2013	17.49	17.64	17.64	18.35	20.86	21.64	22.1	22.44	21.39	19.29	17.68	17.63	19.51
2014	17.09	17.44	17.39	18.29	21.2	21.54	22.05	22.43	21.45	19.1	17.63	17.66	19.44
2015	17.32	17.53	17.67	18.54	21.21	21.82	22.43	22.72	21.73	19.44	17.92	17.87	19.68
2016	17.39	17.67	17.79	18.93	21.49	22.02	22.61	22.97	21.5	19.43	17.99	18.06	19.82
2017	17.2	17.48	17.53	18.69	21.15	21.94	22.7	22.96	21.55	19.61	18.04	18.04	19.74
2018	17.36	17.66	18.01	18.83	21.65	22.59	22.93	23.36	21.9	20.03	18.27	18.01	20.05
2019	17.43	17.71	18.09	18.99	22.02	22.72	23.59	23.78	22.42	20.37	18.56	18.39	20.34
2020	17.52	17.97	18.27	16.99	17.05	18.03	18.83	19	18.56	18.41	17.11	16.95	17.89
2021	17.6	18.06	18.08	17.25	17.31	18.3	18.96	19.13	18.69	18.56	17.25	17.08	18.02
2022	17.6	18.06	17.9	17.39	17.44	18.45	19.13	19.3	18.86	18.74	17.42	17.25	18.13

24.1 Federal government

The federal government response to the pandemic has been substantial. In just over 3 months, more than 3.5 billion dollars have been injected in the state's economy in the form of Economic Impact Payments, Federal unemployment insurance, and the distribution to the state. Federal government employment was up in April 2020 relative to April 2019 but it turned negative in May. In 2020, we expect Federal government employment to end the year at about 3.8% above 2019 largely due to the extensive federal programs. In 2021, we expect the sector to shed some of the jobs it gained in 2020 and then remain flat for 2022.

Figure 34: Federal government

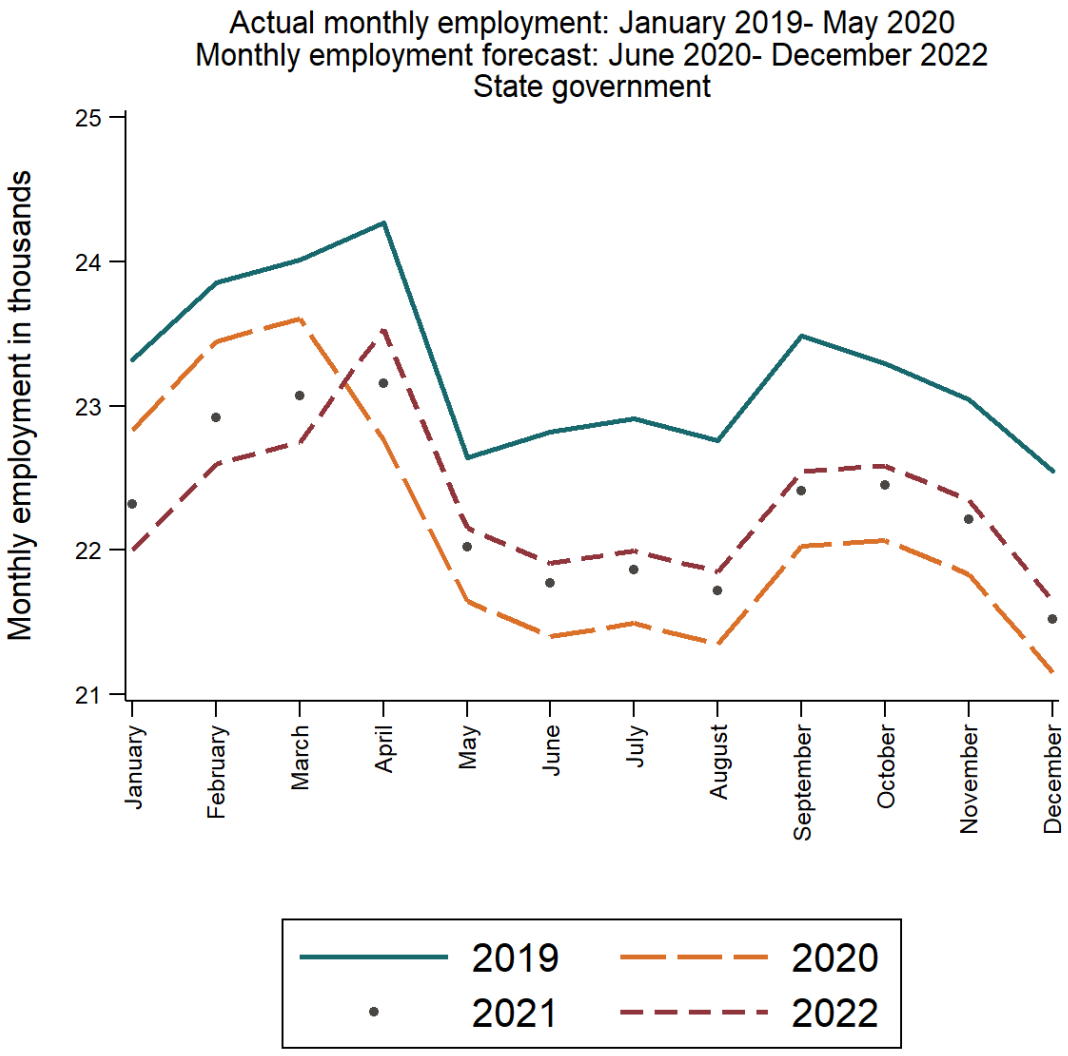


Alaska Federal government employment 2002-2012

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	15.9	15.88	16.06	16.05	16.62	17.44	17.58	17.25	17.34	16.73	16.65	17.59	16.76
2003	16.45	16.45	16.78	16.75	17.3	17.93	17.94	17.77	17.73	16.62	16.63	16.85	17.1
2004	16.46	16.54	16.68	16.95	17.27	18.03	18.08	17.88	17.53	16.96	16.74	16.93	17.17
2005	16.59	16.57	16.63	16.7	17.09	17.67	17.7	17.64	17.3	16.63	16.57	16.56	16.97
2006	16.21	16.28	16.43	16.43	16.78	17.45	17.45	17.26	17.07	16.39	16.17	16.43	16.69
2007	16.42	16.35	16.55	16.51	16.91	17.43	17.57	17.35	16.96	16.7	16.36	16.54	16.8
2008	16.14	16.2	16.39	16.51	17.35	17.8	17.97	17.73	17.29	16.51	16.31	16.43	16.89
2009	16.18	16.17	16.32	17.11	17.72	18.06	17.95	17.78	17.34	16.77	16.54	16.78	17.06
2010	16.3	16.47	17.09	17.44	18.72	19.04	18.86	18.37	17.62	17.28	16.64	16.81	17.55
2011	16.55	16.55	16.7	16.82	17.45	17.9	17.88	17.69	17.52	16.61	16.26	16.47	17.03
2012	16.11	16.15	16.33	16.31	16.66	17.02	17	16.81	16.53	15.95	15.75	16.01	16.39
2013	15.41	15.33	15.48	15.46	15.8	16.05	15.98	15.79	15.62	15.03	14.75	14.92	15.47
2014	14.55	14.54	14.65	14.77	15.24	15.49	15.44	15.31	15.05	14.51	14.4	14.67	14.89
2015	14.26	14.33	14.45	14.67	15.17	15.51	15.56	15.5	15.52	14.81	14.71	14.9	14.95
2016	14.61	14.67	14.82	14.99	15.49	15.85	15.79	15.67	15.55	14.98	14.85	14.97	15.19
2017	14.64	14.69	14.84	14.77	15.31	15.73	15.68	15.58	15.4	14.82	14.63	14.77	15.07
2018	14.36	14.42	14.59	14.77	15.15	15.48	15.46	15.3	15.14	14.67	14.46	14.56	14.86
2019	14.28	14.31	14.45	14.46	15.18	15.35	15.31	15.34	15.27	14.78	14.56	14.73	14.84
2020	14.38	14.41	14.85	15.15	14.98	16.09	16.05	16.08	16.08	15.72	15.49	15.67	15.41
2021	14.34	14.38	14.63	14.79	15.1	15.64	15.61	15.58	15.5	15.05	14.84	14.99	15.04
2022	14.33	14.37	14.64	14.8	15.09	15.7	15.65	15.67	15.61	15.18	14.96	15.13	15.09

24.2 State Government

Figure 35: State government



State government employment will potentially be under pressure for an extended period of time as the state's revenues from oil continue to decline and the stock market volatility may result in lower permanent fund earnings. In 2020, we expect State government employment to end the year at about 4.7% below 2019. In both 2021 and 2022, we expect the sector to remain flat. An important downside risk concerns further cuts in order to balance the budget.It is

Alaska State government employment 2002-2012

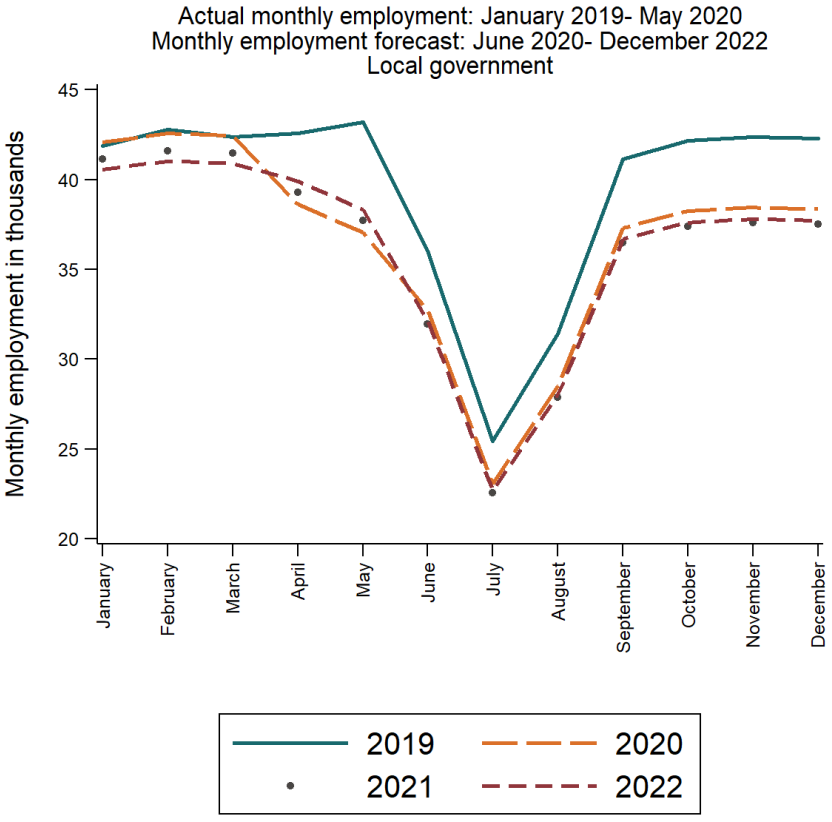
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	22.5	24.03	24.07	24.42	23.63	23.51	22.98	23.41	24.63	24.46	24.42	24.04	23.84
2003	23.81	24.41	24.74	24.95	24.2	23.77	23.39	23.04	24.32	24.56	24.44	24.2	24.15
2004	23.91	24.18	24.61	24.7	23.94	22.99	23.5	23.04	24.65	24.36	24.4	24.38	24.05
2005	23.04	24.21	24.65	24.92	24.54	23.38	23.57	23.21	24.7	24.7	24.7	24.65	24.19
2006	22.43	24.61	25.01	25.26	25.09	24.02	23.8	23.64	25.24	25.07	25.1	24.94	24.52
2007	22.67	24.93	25.25	25.57	25.53	23.72	24.03	23.65	25.21	25.15	25.26	25.07	24.67
2008	22.83	24.96	25.32	25.66	25.64	24.18	24.31	24.35	25.65	25.54	25.59	25.5	24.96
2009	24.48	25.46	25.62	25.96	24.24	24.75	24.71	24.88	26	26.26	26.08	25.8	25.35
2010	25.07	26.2	26.33	26.69	25.25	25.71	24.98	25.06	26.8	26.48	26.4	25.98	25.91
2011	25.14	26.23	26.41	26.75	25.47	25.78	25.11	24.51	26.8	26.6	26.39	26.3	25.96
2012	24.25	26.4	26.64	26.81	26	25.31	25.12	25.61	27.04	26.88	26.75	26.5	26.11
2013	24.48	26.69	26.78	27.09	26.08	25.56	25.54	26	27.09	26.73	26.67	26.54	26.27
2014	26.37	26.79	27.02	27.34	26.51	25.68	25.27	25.8	26.94	26.8	26.85	26.61	26.5
2015	26.16	26.54	26.61	26.93	26.03	25	24.69	24.85	25.91	25.53	25.53	25.34	25.76
2016	24.86	25.26	25.35	25.7	24.97	24.01	23.51	23.66	24.6	24.5	24.46	23.81	24.56
2017	23.64	24.18	24.36	24.55	24.62	23.27	22.66	23.04	24.07	23.88	23.8	23.39	23.79
2018	23.23	23.81	24.01	24.14	24.2	22.83	22.53	23.13	23.99	23.95	23.87	23.44	23.59
2019	23.32	23.85	24.01	24.26	22.64	22.81	22.91	22.75	23.48	23.29	23.04	22.55	23.24
2020	22.83	23.44	23.6	22.76	21.64	21.4	21.49	21.34	22.02	22.06	21.83	21.15	22.13
2021	22.31	22.91	23.06	23.15	22.01	21.77	21.86	21.71	22.4	22.44	22.21	21.51	22.28
2022	22	22.59	22.74	23.53	22.15	21.9	21.99	21.84	22.54	22.58	22.34	21.64	22.32

important to note that the sector has lost jobs every year since 2014.

24.3 Local government

A decline in local government revenues is expected as a result of the much smaller tourism season and potential disruptions to fishing. The federal aid has directed assistance to many communities but much of the aid is for the purpose of dealing with pandemic related expenditures and not for revenue loss replacement. As a result, we expect Local government employment to end the year at about 7.2% below 2019. In 2021, we expect a decline of 1.5% and in 2022, we expect the sector to grow at 0.2%. Similar to State government employment, there is considerable uncertainty surrounding the outlook of the sector as it is heavily tied to Alaska's economic bases of fishing, tourism, and Seafood.

Figure 36: Local government



Alaska Local government employment 2002-2022

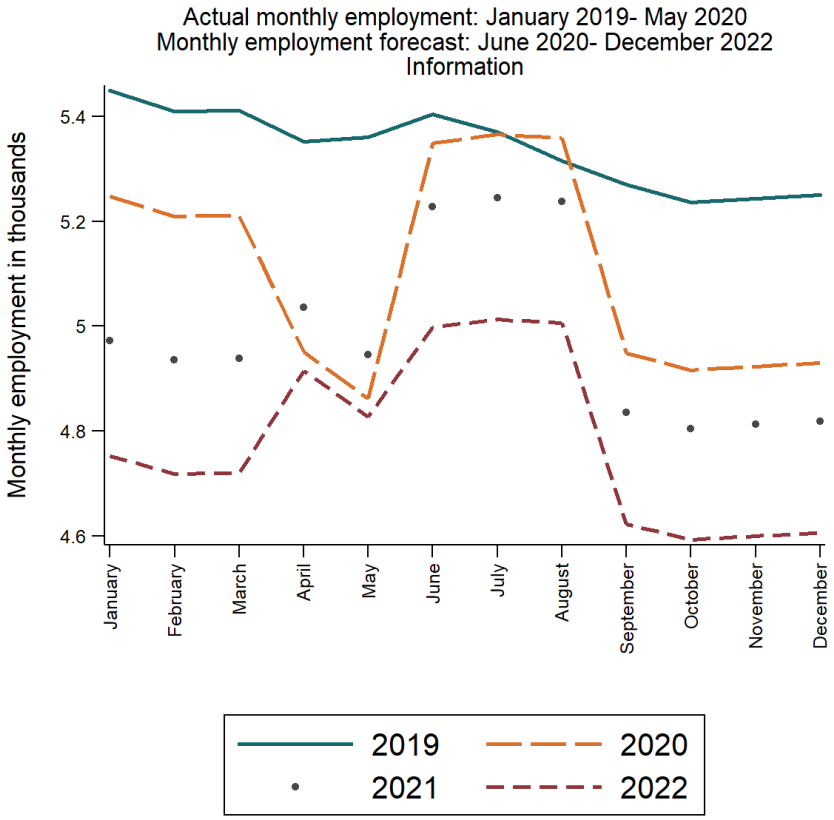
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	39.39	40.69	41.27	41.12	41.41	36.5	25.99	27.95	40.09	41.14	41.2	41.48	38.18
2003	39.79	41.33	41.61	41.64	42.32	37.06	25.22	27.5	40.37	41.6	41.35	41.4	38.43
2004	40.47	41.02	41.53	41.34	41.49	31.96	25.12	27.93	39.43	41.13	41.11	41.37	37.82
2005	40.66	41.15	41.3	41.71	41.71	34.17	24.86	28.42	39.82	41.57	41.46	41.29	38.18
2006	40.34	41.06	41.41	41.83	41.71	36.99	24.97	28.16	40.14	41.05	40.99	40.8	38.29
2007	40.24	41.12	41.32	41.83	41.52	33.93	24.52	30.03	40.63	41.91	41.58	41.51	38.34
2008	40.81	41.65	41.61	42.39	42.18	35.22	26.05	30.65	41.2	42.38	42.46	42.27	39.07
2009	41.47	42.51	42.35	43.21	42.1	35.25	26.31	31.08	42.3	43.69	43.63	43.58	39.79
2010	41.7	42.51	42.29	42.96	41.63	34.67	25	29.78	41.87	43.13	43.01	42.59	39.26
2011	41.86	43.02	42.32	43.01	41.93	35.11	25.56	30.16	41.91	42.94	42.72	42.6	39.43
2012	41.58	42.75	42.84	42.85	42.11	35.93	24.96	34.79	42.1	42.86	42.7	42.64	39.84
2013	41.23	42.05	42	42.3	42.38	35.41	24.83	34.62	40.69	41.51	41.82	41.45	39.19
2014	40.41	41.49	41.34	41.87	42.28	35.42	24.41	31.9	40.98	41.63	41.96	41.82	38.79
2015	41.23	42.01	41.95	42.36	42.73	35.39	25.27	31.27	41.4	42.21	42.45	42.32	39.21
2016	41.96	42.45	42.36	42.82	42.8	35.92	25.47	31.04	41.73	43.06	43.05	42.92	39.63
2017	42.17	42.95	42.7	42.98	43.34	36.08	25.37	31.38	41.58	42.64	42.74	42.76	39.72
2018	41.94	42.78	42.58	42.69	42.91	35.65	25.78	32.15	41.43	42.11	42.24	41.97	39.52
2019	41.88	42.78	42.36	42.58	43.21	36.03	25.42	31.41	41.13	42.17	42.39	42.3	39.47
2020	42.09	42.57	42.45	38.62	37.07	32.68	23.06	28.49	37.3	38.25	38.45	38.37	36.62
2021	41.14	41.6	41.49	39.28	37.71	31.94	22.53	27.85	36.46	37.38	37.58	37.5	36.04
2022	40.56	41.02	40.91	39.92	38.32	32.14	22.67	28.02	36.68	37.61	37.81	37.73	36.12

25 Other sectors

In the next three subsections, we present forecasts for smaller sectors to round out Alaska's NAICS super-sectors. All three sectors are expected to experience mild declines in 2020. The information sector is expected to continue its pre-COVID 19 decline in 2021 and 2022. The Utilities sector is supposed to recapture jobs in 2021 and 2022 and finish 2022 at about 98% of the pre-pandemic levels. Lastly, the Other services sector is expected to decline at a rate of 1.5% in 2021 before growing at a slow 0.28% in 2022.

25.1 Information

Figure 37: Information

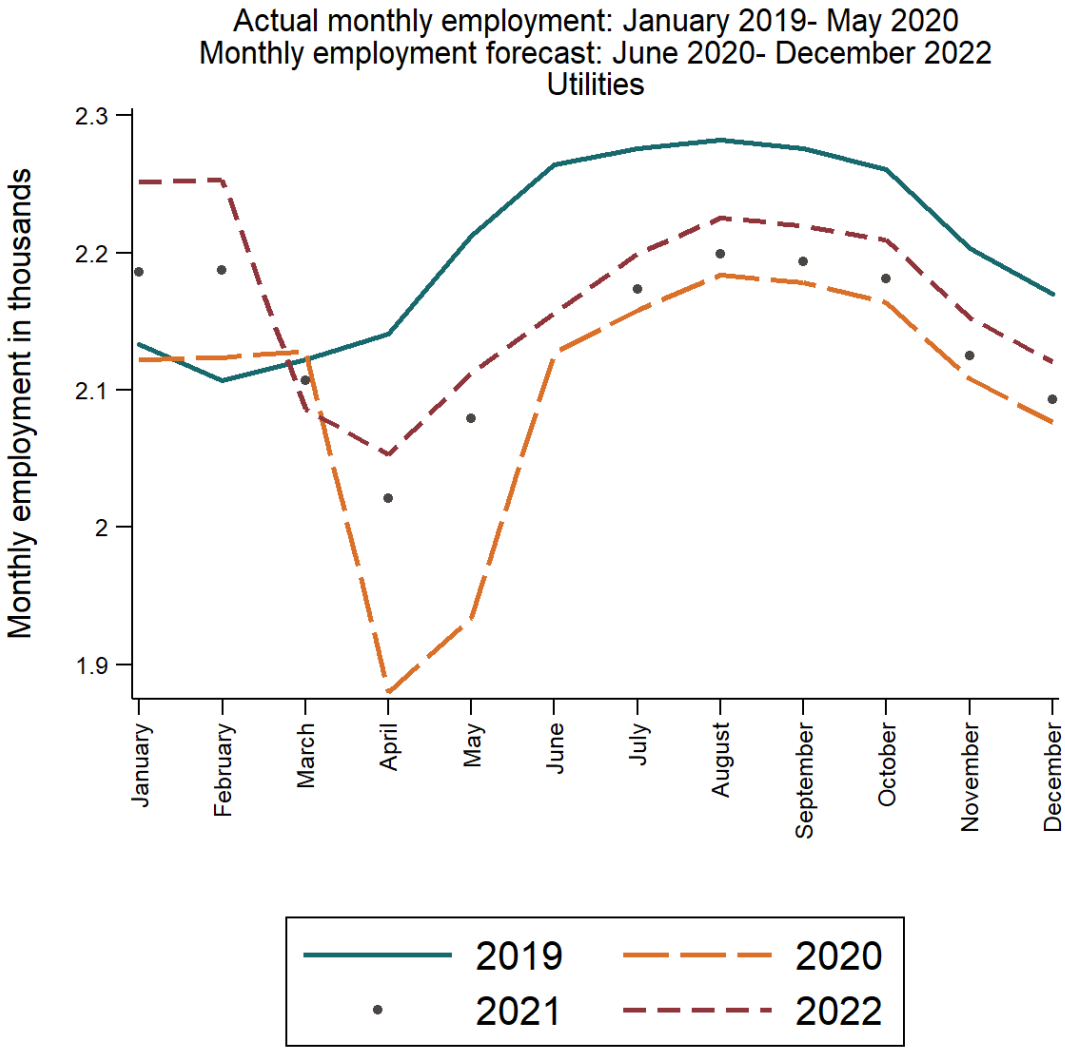


Alaska Information employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	6.903	6.852	6.887	7.015	7.099	7.15	7.357	7.199	7.189	7.077	7.05	7.12	7.074
2003	6.809	6.83	6.828	6.851	7.009	7.085	7.065	6.956	6.892	6.864	6.834	6.827	6.904
2004	6.762	6.772	6.753	6.828	6.888	6.919	6.939	6.932	6.903	6.893	6.925	6.897	6.867
2005	6.848	6.914	6.91	6.869	6.953	6.974	6.943	6.916	6.898	6.85	6.884	6.872	6.902
2006	6.871	6.963	6.971	6.873	6.985	7.039	6.984	7.042	6.949	6.887	6.88	6.909	6.946
2007	6.873	6.858	6.882	6.84	6.92	7	6.977	7.014	6.954	6.898	6.908	6.904	6.919
2008	6.854	6.905	6.933	6.941	7.059	7.055	7.103	7.068	7.094	6.994	6.964	6.977	6.995
2009	6.733	6.771	6.732	6.578	6.559	6.637	6.61	6.559	6.54	6.556	6.499	6.485	6.604
2010	6.312	6.342	6.313	6.249	6.291	6.431	6.522	6.417	6.401	6.916	6.706	6.42	6.443
2011	6.311	6.307	6.349	6.355	6.334	6.383	6.385	6.296	6.242	6.253	6.282	6.297	6.316
2012	6.203	6.181	6.194	6.212	6.242	6.262	6.273	6.207	6.117	6.142	6.123	6.139	6.191
2013	5.952	5.992	5.962	6.055	6.208	6.171	6.224	6.228	6.228	6.184	6.245	6.292	6.145
2014	6.153	6.215	6.213	6.237	6.325	6.282	6.293	6.324	6.235	6.292	6.287	6.275	6.26
2015	6.301	6.31	6.405	6.344	6.293	6.258	6.319	6.317	6.249	6.268	6.229	6.291	6.298
2016	6.217	6.268	6.217	6.365	6.417	6.409	6.387	6.349	6.276	6.15	6.172	6.123	6.279
2017	6.14	6.074	6.088	6.018	6.031	6.05	6.045	5.929	5.884	5.857	5.851	5.855	5.985
2018	5.682	5.666	5.679	5.658	5.715	5.702	5.669	5.622	5.54	5.497	5.487	5.49	5.617
2019	5.449	5.41	5.412	5.352	5.36	5.405	5.371	5.315	5.27	5.236	5.244	5.251	5.339
2020	5.247	5.209	5.211	4.95	4.861	5.349	5.365	5.358	4.947	4.915	4.923	4.93	5.106
2021	4.971	4.936	4.937	5.036	4.945	5.228	5.244	5.237	4.835	4.804	4.812	4.818	4.984
2022	4.752	4.718	4.719	4.914	4.826	4.997	5.012	5.006	4.622	4.592	4.599	4.605	4.78

25.2 Utilities

Figure 38: Utilities

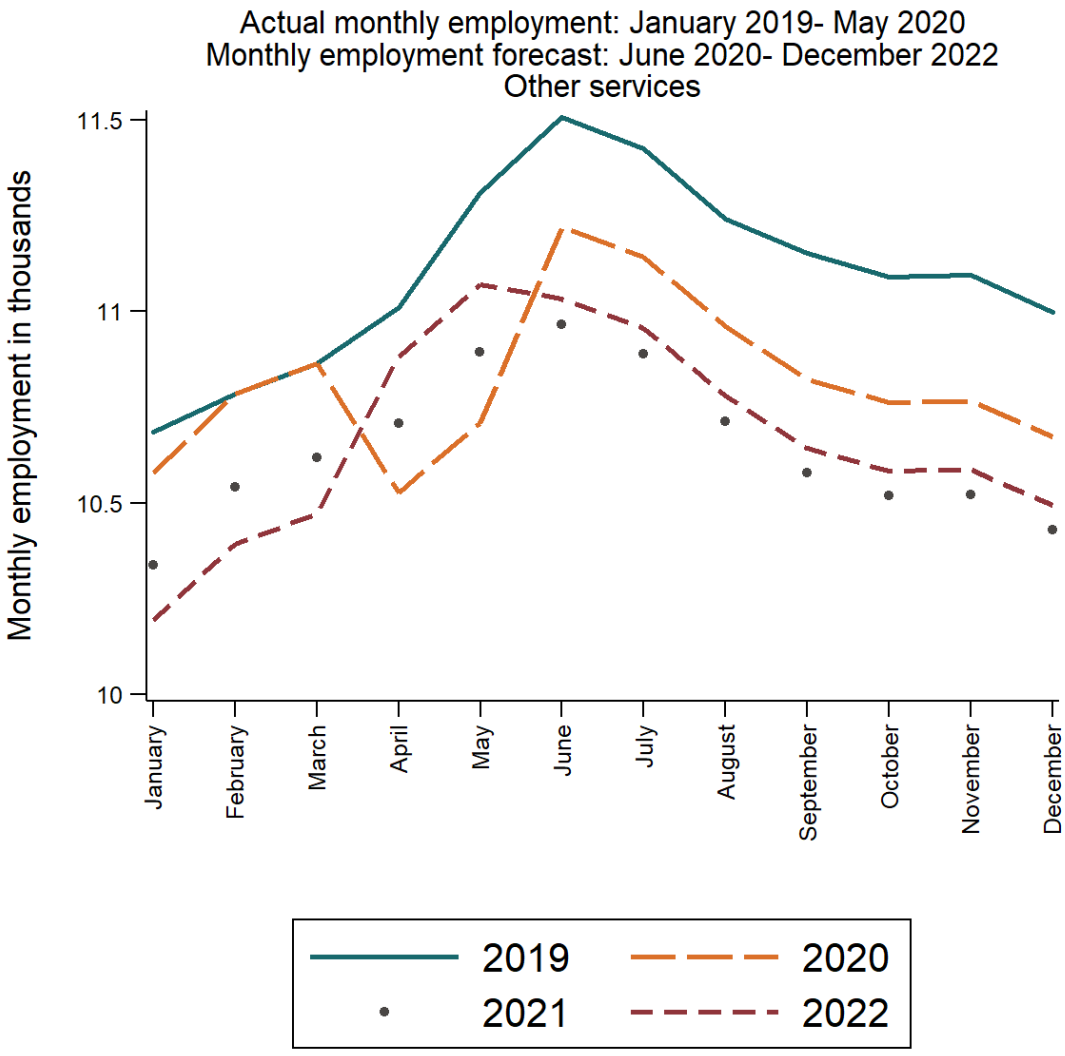


Alaska Utilities employment 2002-2022

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	1.685	1.681	1.69	1.73	1.794	1.835	1.834	1.862	1.793	1.818	1.725	1.698	1.762
2003	1.82	1.802	1.795	1.849	1.959	2.027	2.067	2.084	1.997	1.96	1.876	1.855	1.924
2004	1.707	1.699	1.726	1.743	1.799	1.866	1.942	1.936	1.894	1.878	1.793	1.771	1.812
2005	1.74	1.744	1.753	1.818	1.877	1.943	1.953	1.955	1.921	1.871	1.784	1.744	1.841
2006	1.733	1.731	1.768	1.769	1.855	1.944	1.914	1.931	1.925	1.875	1.811	1.771	1.835
2007	1.757	1.746	1.76	1.811	1.856	1.943	1.92	1.919	1.892	1.86	1.815	1.79	1.839
2008	1.753	1.777	1.805	1.821	1.908	1.936	1.957	2.017	1.99	1.95	1.907	1.891	1.892
2009	1.846	1.853	1.895	1.951	1.982	2.045	2.052	2.083	2.074	2.056	1.966	1.96	1.98
2010	2.071	2.077	2.068	2.125	2.154	2.217	2.221	2.234	2.206	2.152	2.081	2.084	2.14
2011	2.028	2.029	2.043	2.063	2.125	2.152	2.176	2.185	2.139	2.18	2.078	2.07	2.105
2012	2.014	2.009	2.003	2.069	2.138	2.209	2.197	2.216	2.17	2.167	2.112	2.077	2.115
2013	2.032	2.042	2.052	2.108	2.169	2.229	2.223	2.213	2.198	2.157	2.096	2.052	2.13
2014	2.023	1.986	2.012	2.067	2.166	2.2	2.198	2.189	2.137	2.139	2.073	2.053	2.103
2015	2.051	2.06	2.069	2.102	2.173	2.224	2.196	2.176	2.189	2.173	2.111	2.104	2.135
2016	2.073	2.055	2.042	2.086	2.167	2.186	2.177	2.181	2.156	2.147	2.085	2.079	2.119
2017	2.068	2.047	2.051	2.07	2.146	2.185	2.187	2.169	2.162	2.11	2.101	2.095	2.115
2018	2.102	2.111	2.124	2.157	2.248	2.299	2.272	2.278	2.251	2.242	2.138	2.116	2.194
2019	2.133	2.107	2.122	2.141	2.212	2.264	2.276	2.282	2.276	2.261	2.203	2.17	2.203
2020	2.122	2.123	2.128	1.879	1.933	2.126	2.158	2.183	2.178	2.163	2.108	2.076	2.098
2021	2.186	2.187	2.107	2.02	2.079	2.129	2.173	2.199	2.193	2.181	2.125	2.093	2.13
2022	2.251	2.253	2.086	2.053	2.112	2.131	2.199	2.225	2.219	2.209	2.152	2.12	2.16

25.3 Other services

Figure 39: Other services



Alaska Other services employment 2002-2019

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Average Emp
2002	11.25	11.43	11.62	11.84	12.04	11.96	12.11	12.12	11.98	11.89	11.86	11.86	11.83
2003	11.01	11.07	11.17	11.24	11.4	11.44	11.34	11.4	11.29	11.39	11.26	11.32	11.28
2004	10.37	10.52	10.61	10.71	10.88	11	10.85	10.88	10.82	10.82	10.74	10.61	10.73
2005	10.65	10.8	10.95	11.23	11.27	11.26	11.3	11.24	11.16	11.08	11.07	11.02	11.09
2006	10.89	10.99	11.2	11.3	11.43	11.39	11.34	11.32	11.42	11.36	11.32	11.22	11.27
2007	11.05	11.24	11.34	11.46	11.75	11.58	11.53	11.55	11.5	11.44	11.43	11.43	11.44
2008	11.18	11.37	11.48	11.62	11.85	11.9	11.86	11.92	11.87	11.92	11.79	11.66	11.7
2009	11.57	11.7	11.68	11.86	12.13	12.06	12.08	12.06	11.89	11.79	11.77	11.65	11.85
2010	11.49	11.48	11.59	11.82	11.97	12.19	12.25	12.13	12.04	11.88	11.86	11.79	11.87
2011	11.5	11.63	11.76	11.92	12	12.2	12.12	12.12	12.12	12.12	11.97	11.97	11.95
2012	11.4	11.48	11.5	11.62	11.9	12.01	11.96	11.94	11.79	11.74	11.75	11.61	11.72
2013	11.54	11.58	11.72	11.81	12.03	12.11	12.08	11.99	11.85	11.74	11.76	11.66	11.82
2014	11.57	11.62	11.57	11.81	12.03	12.1	12.22	12.14	12.04	12.11	11.92	11.61	11.89
2015	11.5	11.57	11.6	11.87	12.1	12.16	11.93	11.69	11.68	11.67	11.68	11.62	11.75
2016	10.95	10.92	10.98	11.2	11.44	11.4	11.36	11.18	11.23	11.12	11.08	10.91	11.15
2017	10.77	10.86	10.94	11.31	11.52	11.7	11.48	11.41	11.39	11.22	11.09	11.03	11.23
2018	10.88	10.91	10.93	11.24	11.43	11.6	11.43	11.34	11.1	11.21	11.13	11.04	11.19
2019	10.68	10.78	10.86	11.01	11.3	11.5	11.42	11.24	11.15	11.09	11.09	10.99	11.09
2020	10.57	10.78	10.86	10.52	10.7	11.21	11.14	10.96	10.82	10.76	10.76	10.67	10.81
2021	10.33	10.53	10.61	10.7	10.89	10.96	10.88	10.71	10.57	10.51	10.52	10.43	10.64
2022	10.19	10.39	10.47	10.88	11.06	11.03	10.95	10.77	10.64	10.58	10.58	10.49	10.67

26 Sources of Uncertainty

An unusually high degree of uncertainty surrounds these economic projections. That heightened uncertainty stems from a number of different factors:
How the pandemic will unfold this year and next year, How the pandemic and social distancing will affect the economy, How recent policy actions will affect the economy, and How many businesses end up permanently closing as a result of the shock.

Both the course of the Pandemic The severity and duration of the pandemic are highly uncertain. Many factors that will influence the future progress of the pandemic are unclear. Because this coronavirus is new, important epidemiological characteristics are still being studied. Among those are how easily transmissible the virus is, the extent to which the virus is transmissible before people who are infected show symptoms, the extent to which people can be infected without showing any symptoms, the extent of any immunity built up by people who have recovered from the infection, whether the virus becomes less transmissible during certain seasons, and the lethality of the illness caused by the virus.

Another source of uncertainty is how individuals and policymakers will respond to the pandemic in the coming months. The individual unemployment insurance aid is set to expire at the end of July and absent an extension of benefits, the incomes of thousands of Alaskans could plunge which would severely hamper the recovery. Economic Output, employment, inflation, interest rates, and many other macroeconomic variables have already been influenced by the course of the pandemic and the social distancing measures implemented to contain it. A second wave or even fears surrounding a second wave could impact both the speed and the shape of the recovery. Clearly, a vaccine could drastically the outlook presented above and the course of economic activity.

27 Conclusion

This paper provides an overview of the COVID-19 related shocks to the Alaska economy and provides an outlook for the next two years. Forecasts are inherently uncertain but the pandemic has resulted in unprecedented uncertainty which may considerably influence the outlook. Conditional on containing the virus, we expect the economy to experience a 7.4% decline in employment before slowly resuming growth in 2021 and 2022. However, due to the size of the shock, we do not expect employment by the end of 2022 to return to pre-pandemic levels. The outlook is particularly uncertain because not only does it depend on the virus, and consumer behavior, but because it also depends on a number of policy variables such as whether the federal government extends the unemployment insurance benefits, the extent to which the state will need to cut the budget, and whether local governments will need to reduce their workforce.

References

[1] Budget Office, C. Interim Economic Projections for 2020 and 2021. May 2020. Technical report.

[2] Economic projections of Federal Reserve Board members. Near term economic forecast.

[3] McDowel group. Alaska's construction spending forecast for the year 2020. Technical report.

[4] McDowel Group (2018). Economic impact of Tourism. Technical report.

Appendix

A: Change in job postings by state

B: Change in the share of small businesses open by state

C: Change in spending by state

D: Change in revenues of small businesses by state

A: Percentage change in job postings in late May relative to January

	All postings	financial activities	professional	Manuf	Educ & Health	leisure and hospitality
Alabama	-.326	-.483	-.295	-.17	-.336	-.311
Alaska	-.382	.0299	-.454	-.291	-.429	-.5
Arizona	-.433	-.548	-.482	-.478	-.337	-.677
Arkansas	-.464	-.416	-.444	-.384	-.364	-.669
California	-.339	-.373	-.425	-.466	-.274	-.586
Colorado	-.382	-.319	-.395	-.436	-.438	-.666
Connecticut	-.407	-.619	-.418	-.51	-.273	-.725
Delaware	-.53	-.653	-.548	-.502	-.625	-.238
Florida	-.388	-.376	-.35	-.409	-.399	-.562
Georgia	-.361	-.518	-.512	-.475	-.041	-.634
Hawaii	-.51	-.351	-.539	-.262	-.379	-.843
Idaho	-.388	-.413	-.285	-.347	-.463	-.522
Illinois	-.39	-.407	-.494	-.563	-.353	-.635
Indiana	-.295	-.333	-.256	-.487	-.25	-.309
Iowa	-.345	-.584	-.35	-.413	-.277	-.598
Kansas	-.351	-.48	-.338	-.313	-.458	-.412
Kentucky	-.347	-.438	-.356	-.284	-.407	-.429
Louisiana	-.0748	-.13	-.047	-.213	.0203	-.402
Maine	-.271	.421	-.552	-.372	-.248	-.668
Maryland	-.253	-.391	-.452	-.425	-.0516	-.584
Massachusetts	-.268	-.287	-.386	-.481	-.211	-.555
Michigan	-.416	-.596	-.449	-.526	-.361	-.561
Minnesota	-.311	-.426	-.405	-.521	-.328	-.506
Mississippi	-.372	-.537	-.183	-.094	-.261	-.657
Missouri	-.34	-.329	-.461	-.351	-.328	-.512
Montana	-.273	-.282	-.27	-.27	-.35	-.291
Nebraska	-.32	-.42	-.355	-.286	-.327	-.423
Nevada	-.399	-.26	-.356	-.365	-.376	-.664
New Hampshire	.173	-.388	-.186	-.412	-.103	-.365
New Jersey	-.316	-.338	-.425	-.537	-.361	-.678
New Mexico	-.427	-.373	-.404	-.464	-.416	-.612
New York	-.419	-.448	-.556	-.566	-.238	-.754
North Carolina	-.352	-.391	-.39	-.439	-.272	-.386
North Dakota	-.453	-.496	-.435	-.55	-.427	-.607
Ohio	-.438	-.361	-.348	-.461	-.654	-.32
Oklahoma	-.371	-.511	-.253	-.399	-.39	-.378
Oregon	-.355	-.483	-.286	-.421	-.315	-.635
Pennsylvania	-.398	-.436	-.516	-.568	-.337	-.63
Rhode Island	-.223	-.431	-.361	-.238	-.182	-.309
South Carolina	-.449	-.372	-.436	-.492	-.345	-.617
South Dakota	-.355	-.603	-.413	-.102	-.246	-.677
Tennessee	-.379	-.413	-.419	-.428	-.397	-.466
Texas	-.381	-.503	-.403	-.49	-.243	-.516
Utah	-.396	-.245	-.431	-.424	-.4	-.56
Vermont	-.462	-.164	-.311	-.522	-.476	-.879
Virginia	-.365	-.27	-.49	-.351	-.369	-.535
Washington	-.399	-.485	-.352	-.487	-.381	-.671
West Virginia	-.37	-.55	-.423	-.239	-.341	-.371
Wisconsin	-.451	-.488	-.453	-.562	-.421	-.623
Wyoming	-.564	-.792	-.594	-.53	-.668	-.35

B: Percentage change in the share of small businesses open in late May relative to January

	All	Transportation	Professional	Educ and Health	Leisure and Hospitality
Alabama	-.236	-.123	-.0636	-.205	-.343
Alaska	-.323	-.284	-.339	-.131	-.485
Arizona	-.22	-.143	-.00862	-.147	-.343
Arkansas	-.158	-.138	-.103	-.115	-.264
California	-.342	-.286	-.145	-.255	-.372
Colorado	-.274	-.251	-.127	-.202	-.368
Connecticut	-.358	-.254	.161	-.352	-.406
Delaware	-.381	-.352	-.066	-.353	-.438
Florida	-.252	-.154	-.0876	-.206	-.351
Georgia	-.194	-.152	-.0718	-.216	-.278
Hawaii	-.448	-.5	-.295	-.212	-.458
Idaho	-.233	-.137	-.116	-.145	-.358
Illinois	-.339	-.274	-.038	-.299	-.374
Indiana	-.27	-.207	-.108	-.173	-.358
Iowa	-.3	-.207	-.0628	-.28	-.375
Kansas	-.204	-.162	-.0736	-.0409	-.296
Kentucky	-.311	-.286	-.0836	-.216	-.374
Louisiana	-.336	-.224	-.144	-.236	-.462
Maine	-.375	-.33	-.0581	-.262	-.596
Maryland	-.4	-.367	-.137	-.411	-.414
Massachusetts	-.45	-.349	-.0684	-.407	-.47
Michigan	-.361	-.27	.00484	-.307	-.448
Minnesota	-.317	-.262	-.0925	-.329	-.395
Mississippi	-.206	-.0998	-.00421	-.126	-.345
Missouri	-.24	-.195	-.11	-.214	-.339
Montana	-.231	-.194	-.0908	-.118	-.315
Nebraska	-.223	-.178	-.132	-.157	-.309
Nevada	-.363	-.283	-.1	-.17	-.562
New Hampshire	-.375	-.307	-.0894	-.307	-.473
New Jersey	-.409	-.34	-.182	-.38	-.402
New Mexico	-.414	-.384	-.136	-.367	-.434
New York	-.388	-.32	-.0912	-.39	-.44
North Carolina	-.28	-.225	-.0883	-.221	-.382
North Dakota	-.178	-.118	.0868	-.142	-.25
Ohio	-.328	-.256	-.0249	-.258	-.405
Oklahoma	-.189	-.123	-.185	-.148	-.285
Oregon	-.356	-.273	-.0664	-.269	-.433
Pennsylvania	-.365	-.296	-.136	-.363	-.404
Rhode Island	-.433	-.364	.321	-.409	-.529
South Carolina	-.213	-.116	.00819	-.148	-.285
South Dakota	-.205	-.169	-.0881	-.0754	-.306
Tennessee	-.216	-.16	-.145	-.135	-.277
Texas	-.217	-.115	-.0882	-.184	-.302
Utah	-.142	-.105	.0265	-.115	-.276
Vermont	-.416	-.289	-.0423	-.398	-.626
Virginia	-.318	-.24	-.0927	-.227	-.346
Washington	-.355	-.281	-.145	-.241	-.399
West Virginia	-.263	-.213	.0152	-.25	-.419
Wisconsin	-.342	-.253	-.0143	-.268	-.457
Wyoming	-.289	-.24	-.0795	-.223	-.412

C: Percentage change in spending in early May relative to January

	All spending	Restaurants	Entertainment	General Merchandise	Grocery stores	Healthcare
Alabama	-.0708	-.377	-.605	-.131	.222	-.254
Alaska	-.184	-.556	-.627	-.172	.123	-.604
Arizona	-.184	-.549	-.614	-.357	.155	-.334
Arkansas	.0355	-.362	-.739	.0227	.27	-.318
California	-.268	-.616	-.715	-.42	.205	-.489
Colorado	-.192	-.578	-.627	-.338	.153	-.354
Connecticut	-.222	-.595	-.703	-.34	.262	-.583
Delaware	-.187	-.571	-.727	-.211	.25	-.449
Florida	-.113	-.389	-.648	-.246	.204	-.371
Georgia	-.151	-.454	-.633	-.26	.185	-.36
Hawaii	-.0991	-.45	-.731	-.265	.339	-.294
Idaho	-.072	-.426	-.559	-.119	.201	-.131
Illinois	-.166	-.501	-.751	-.268	.223	-.477
Indiana	-.0418	-.44	-.811	-.0199	.227	-.246
Iowa	-.19	-.569	-.6	-.255	.159	-.565
Kansas	-.0934	-.41	-.715	-.151	.148	-.241
Kentucky	-.0395	-.332	-.706	-.133	.238	-.248
Louisiana	-.0834	-.434	-.747	-.154	.235	-.329
Maine	-.0313	-.436	-.615	-.0259	.0735	-.321
Maryland	-.217	-.508	-.741	-.325	.175	-.515
Massachusetts	-.167	-.55	-.738	-.263	.276	-.543
Michigan	-.0588	-.459	-.552	-.0658	.262	-.469
Minnesota	-.161	-.551	-.587	-.237	.204	-.51
Mississippi	-.0542	-.391	-.91	.049	.23	-.209
Missouri	-.103	-.448	-.776	-.179	.233	-.325
Montana	-.119	-.534	-.709	-.175	.219	-.341
Nebraska	-.111	-.407	-.675	-.178	.141	-.193
Nevada	-.25	-.603	-.59	-.39	.281	-.404
New Hampshire	-.0886	-.506	-.697	-.19	.192	-.518
New Jersey	-.157	-.508	-.575	-.323	.293	-.524
New Mexico	-.218	-.668	-.795	-.341	.299	-.606
New York	-.182	-.543	-.777	-.313	.236	-.574
North Carolina	-.217	-.547	-.663	-.336	.137	-.47
North Dakota	.0111	-.269	-.524	-.0573	.224	-.204
Ohio	-.138	-.463	-.758	-.119	.178	-.335
Oklahoma	-.0483	-.353	-.575	-.136	.175	-.118
Oregon	-.248	-.65	-.701	-.333	.126	-.431
Pennsylvania	-.133	-.5	-.599	-.239	.301	-.544
Rhode Island	-.302	-.613	-.98	-.348	.136	-.857
South Carolina	-.0775	-.387	-.574	-.0917	.191	-.286
South Dakota	-.199	-.562	-.434	-.225	.0766	-.35
Tennessee	.0304	-.233	-.612	.0617	.232	-.164
Texas	-.124	-.409	-.689	-.267	.165	-.324
Utah	-.115	-.466	-.58	-.318	.308	-.285
Vermont	-.115	-.585	-.901	-.194	.119	-.653
Virginia	-.182	-.519	-.725	-.305	.16	-.389
Washington	-.224	-.617	-.693	-.379	.161	-.506
West Virginia	-.0445	-.403	-.734	.00273	.205	-.344
Wisconsin	-.141	-.532	-.641	-.174	.207	-.419
Wyoming	-.0386	-.437	-.287	-.139	.126	-.149

D: Percentage change in revenues of small businesses open in late May relative to January

	All	Transportation	Professional	Educ and Health	Leisure and Hospitality
Alabama	-.19	-.0531	-.0324	-.528	-.477
Alaska	-.294	-.0108	-.165	-.284	-.622
Arizona	-.203	.0618	.0144	-.34	-.565
Arkansas	-.178	-.161	.000682	-.341	-.395
California	-.32	-.2	-.0726	-.431	-.633
Colorado	-.196	-.0841	.0906	-.343	-.485
Connecticut	-.252	-.0582	.43	-.519	-.576
Delaware	-.327	-.235	-.223	-.574	-.471
Florida	-.304	-.137	-.0517	-.336	-.59
Georgia	-.225	-.0449	-.23	-.358	-.466
Hawaii	-.65	-.547	-.666	-.465	-.788
Idaho	-.0885	.145	.00336	-.154	-.511
Illinois	-.294	-.207	-.207	-.401	-.557
Indiana	-.211	.0242	-.17	-.264	-.472
Iowa	-.242	-.0502	.0597	-.411	-.537
Kansas	-.142	-.0655	.043	-.236	-.451
Kentucky	-.23	-.173	.147	-.265	-.587
Louisiana	-.316	-.0499	-.0867	-.34	-.641
Maine	-.142	.0928	.238	-.486	-.712
Maryland	-.286	-.232	.129	-.334	-.588
Massachusetts	-.473	-.287	-.0878	-.595	-.649
Michigan	-.236	-.0556	.0419	-.563	-.491
Minnesota	-.315	-.243	-.118	-.38	-.582
Mississippi	.015	.0903	1.4	-.382	-.417
Missouri	-.202	.0724	-.142	-.288	-.588
Montana	-.108	.000508	-.19	-.0593	-.412
Nebraska	-.362	-.27	-.248	-.427	-.503
Nevada	-.447	-.11	-.0954	-.423	-.82
New Hampshire	-.314	-.0855	-.153	-.388	-.648
New Jersey	-.414	-.191	-.221	-.487	-.6
New Mexico	-.464	-.31	-.306	-.496	-.619
New York	-.486	-.328	-.274	-.571	-.697
North Carolina	-.22	-.0711	.00182	-.368	-.604
North Dakota	-.765	-.0334	-.991	-.357	-.411
Ohio	.0548	.504	.247	-.383	-.572
Oklahoma	-.13	.0555	-.0287	-.196	-.39
Oregon	-.199	-.0235	.24	-.342	-.466
Pennsylvania	-.488	-.41	-.521	-.512	-.636
Rhode Island	-.372	-.0574	.343	-.375	-.652
South Carolina	-.246	-.0467	.144	-.291	-.542
South Dakota	-.219	-.105	-.25	-.236	-.359
Tennessee	-.133	.0791	.00205	-.194	-.459
Texas	-.262	-.089	-.061	-.33	-.535
Utah	.0375	.462	.173	-.238	-.516
Vermont	-.462	-.334	-.12	-.581	-.731
Virginia	-.391	-.339	-.162	-.342	-.581
Washington	-.354	-.155	-.0339	-.542	-.538
West Virginia	-.236	-.104	.155	-.195	-.569
Wisconsin	-.242	-.168	.000879	-.548	-.544
Wyoming	-.175	-.108	.0738	-.233	-.374